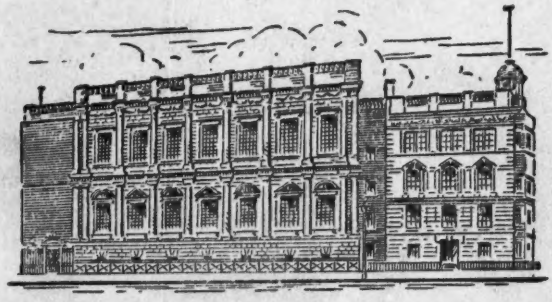
Vol. LXXX NOVEMBER, 1935 No. 520

JOURNAL



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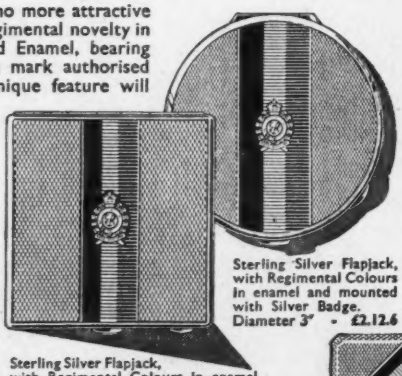

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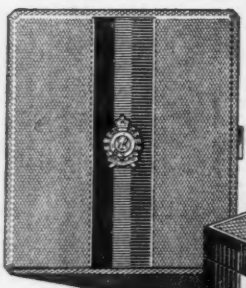

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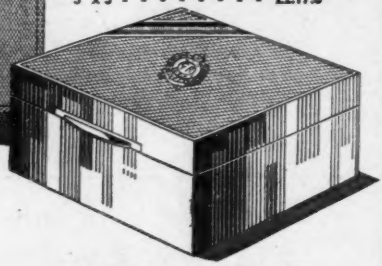

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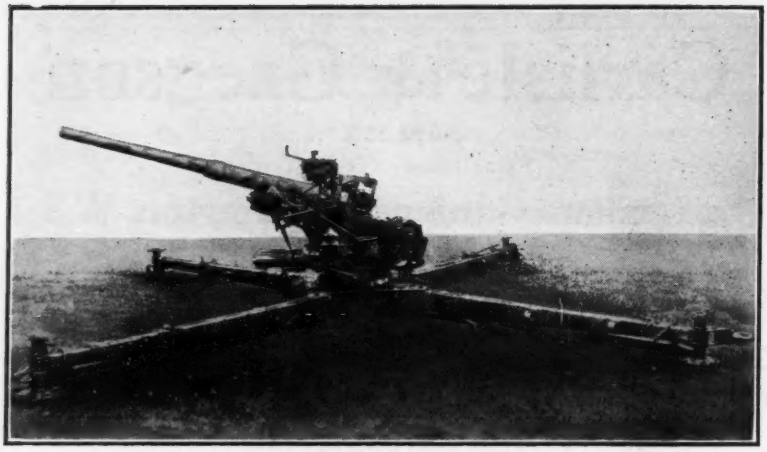

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ROYAL UNITED SERVICE INSTITUTION

FOR

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Naval, Military, and Air Force Cadets are eligible on the recommendation of their Commanding Officers.

An Officers' Mess may subscribe to the JOURNAL, but is *not* eligible for membership.

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Officers of the Indian, Dominion and Colonial Naval, Military, and Air Forces temporarily in the United Kingdom may become members for a period of six months on payment of Ten Shillings and Sixpence, or One Guinea for twelve months. The additional subscription to the Lending Library is Five Shillings for six months.

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The Royal United Service Institution is situated just below the War Office in Whitehall. It has the best professional Library in the United Kingdom; a Lecture Theatre where an autumn and winter session of lectures is devoted to subjects of current or historical Service interest. The Reading and Smoking Rooms are provided with the leading papers, periodicals and writing materials.

The Institution is open daily from 10 a.m. to 7 p.m., except Sunday, Christmas Day and Good Friday.

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The R.U.S.I. JOURNAL is published quarterly and sent post free to Members in any part of the world.

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Situated in the Banqueting Hall of the old Palace of Whitehall (1622), with its magnificent Rubens ceiling, the R.U.S. Museum is a treasure house of relics and mementoes of great victories and renowned warriors. There is also a most valuable collection of Uniforms, Medals, Ship, Tank, and Aircraft Models. and models of the battles of Trafalgar and Waterloo.

For Members and their friends, there are private entrances to the Museum from the Institution.

H.M. Forces in uniform are admitted free at the public entrance.

Admission to the general public is 1s.; Wednesday and Saturday after Noon, 6d.

SECRETARY'S NOTES

November, 1935

Vice-President

Field-Marshal Sir Philip Chetwode, Bart., G.C.B., G.C.S.I., K.C.M.G., D.S.O., has been elected a Vice-President of the Institution in the place of the late Field-Marshal the Viscount Byng of Vimy, G.C.B., G.C.M.G., M.V.O., LL.D.

Council

Brigadier-General S. E. Massy-Lloyd, C.B.E., has been elected as the Militia representative on the Council in succession to the late Colonel Lord Ampthill, G.C.S.I., G.C.I.E.

Staff

Lieut.-Colonel A. G. Armstrong, *p.s.c.*, I.A., has succeeded Lieut.-Colonel H. G. de Watteville, C.B.E., as Assistant Editor of the JOURNAL.

New Members

The following officers joined the Institution during the months of August September and October :—

ROYAL NAVY

Lieutenant-Commander T. B. R. Woodrooffe, R.N.
Commander T. K. W. Atkinson, R.N.
Lieutenant-Commander H. Pursey, R.N.
Admiral Sir W. Reginald Hall, K.C.M.G., C.B., D.C.L.
Sub-Lieutenant W. R. Gordon, R.N. (retired).
Rear-Admiral E. J. Hardman-Jones, C.B., O.B.E.
Eng.-Captain S. Jackson, O.B.E., R.N.
Rear-Admiral J. A. G. Troup.

ARMY

Captain N. A. R. Potter, Royal Artillery.
Captain H. D. Lysons, Royal Artillery.
Lieutenant R. P. D. F. Allen, 14th/20th Hussars.
Lieutenant A. E. Phillips, Royal Artillery.
Lieutenant R. Gwynne Lawrence, 4th/7th Dragoon Guards.
2nd Lieutenant G. H. Sherrin, Honourable Artillery Company (Infantry) (T.A.).
2nd Lieutenant E. H. Baume, The Cameronians (Scottish Rifles).
Major H. L. Mostyn-Owen, 19th Lancers.
Lieutenant E. H. A. Jackson, Royal Artillery.
2nd Lieutenant J. A. E. Newell, Royal Artillery (T.A.).
2nd Lieutenant E. L. Wallis, 7th Battn. The Middlesex Regiment (T.A.).
Lieut.-Colonel E. G. Warren, The Northamptonshire Regiment.
Lieutenant R. B. W. Williams, The Somerset Light Infantry.
Lieutenant F. H. B. Webster, The Essex Regiment.

Lieutenant H. P. E. Pereira, The Worcestershire Regiment (S.R.).
Lieutenant I. D. H. Helby, The Royal Berkshire Regiment.
Lieutenant C. G. Lipscombe, The Somerset Light Infantry.
Colonel C. H. M. Bingham, C.M.G., D.S.O., *p.s.c.* (ret.).
Major L. W. Kentish, D.S.O., The Royal Fusiliers (ret.).
Major F. H. Fraser, D.S.O., M.C., The Duke of Wellington's Regiment.
2nd Lieutenant D. G. Hamilton, The King's Shropshire Light Infantry.
Major-General Sir Percy Z. Cox, G.C.M.G., G.C.I.E., K.C.S.I.
Captain R. McD. Howatt, M.C., T.A. Reserve of Officers.
Lieutenant M. B. Coleman, I.A.S.C.
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Lieutenant L. S. Ford, The North Staffordshire Regiment.
Captain W. Ryding, The Border Regiment.
Major H. A. Barnett, 47th (2nd London) Division, R.A.S.C. (T.A.).
Colonel A. G. Bayley, C.B.E., D.S.O., late The Oxfordshire and Buckinghamshire Light Infantry.
Lieutenant D. E. Harrison, Royal Signals.

ROYAL AIR FORCE

Flight-Lieutenant A. F. Britton, R.A.F.
Acting Pilot Officer L. E. Cryer, R.A.F.
Wing-Commander H. F. Fuller, R.A.F.

Members Joining in October

Attention is invited to the fact that Members joining after 1st October of the current year are not called upon for any further subscription until January, 1937.

Special Facilities for Junior Officers

Attention is invited to the special facilities which now exist for Junior Officers to join the Institution :—

Commissioned Officers of the Home, Dominion, Indian, and Colonial fighting Services and their Reserves, of three years or less seniority as such ; Midshipmen, R.N., R.N.R. and R.N.V.R. ; and Naval, Military and Air Force Cadets, are admitted to membership without Entrance Fee on payment of the first annual subscription of £1 5s. Such membership dates from 1st January.

Gold Medal Essay (Military) 1936

The following subject has been selected :—

> " Tactical and administrative movements in modern armies have been radically affected by the introduction of the internal combustion engine. Discuss the possibilities of its use in the British Army in assisting to overcome the strength of modern defence and in countering the increasing threat of air action."

Gold Medal Essay (Air) 1935

The following Essays have been received :—

" Alia tendanda via est."
" Fools rush in."
" Tempora mutantur nos et mutamur in illis."

Eardley-Wilmot Medal Competition

The following Essay has been received :—

" Animus opibusque paratis."

R.U.S.I. CHRISTMAS CARDS

A Christmas Card specially designed for Members of the Institution is now available. The cover has the Institution's crest in gold, and within is a small reproduction of the original artist's black-and-white sketch of the Banqueting House and Institution building which appeared in the Centenary number of the JOURNAL. The ribbon is three-colour : Navy blue, Army red, and Air Force light blue. The price is, including envelopes, 4/- a dozen. Postage extra.

Members are requested to make early application for the number of cards they require, and to enclose the requisite remittance with their order.

LIBRARY

Facilities for Borrowing Books

The special attention of Members who are paying the comprehensive annual subscription of £1 5s. od., is invited to the fact that they are thereby entitled to the full privileges of the Lending Library without further charge. These include the right to have sent to them not more than four volumes at a time on loan, the Member paying postage both ways.

Old Members who have not wished to conform to the new arrangement and who are still paying the original subscription of £1 1s. od., must pay an additional subscription of 10/- per annum in order to belong to the Lending Library.

All Members are, of course, free to use the Library when they visit the Institution.

Rules Governing Return of Books

The attention of Members is invited to the following Regulations governing the retention and return of books :—

(1) Certain books, for which there is a special demand, must not be retained longer than a fortnight after the date of receipt. A notice to this effect will be found in the book.

(2) In the United Kingdom.—Books must normally be returned within one month of the date of issue ; but the Librarian is authorized to make extensions of one month at a time on application by a Member, up to a maximum of three months from the date of issue, if the work is not required by another Member.

(3) Stations Abroad.—When books are sent to Members abroad the same rules apply as for the United Kingdom, except that " the date of receipt " is substituted for " the date of issue."

N.B.—IN VIEW OF THE INCREASING DEMAND FOR BOOKS FROM THE LENDING LIBRARY, IT IS ESSENTIAL IN THEIR OWN INTERESTS THAT MEMBERS SHOULD ADHERE STRICTLY TO THE RULES GOVERNING THE RETURN OF BOOKS. FAILURE TO DO SO IS CAUSING MUCH INCONVENIENCE, AND INVOLVING THE INSTITUTION IN UNNECESSARY EXPENSE AND CLERICAL LABOUR.

Periodicals on Sale

The following periodicals for 1935 will be sold to the highest bidder :—" The Aeronautical Journal," " The Aeroplane," " Airways," " Blackwood's Magazine," " The Blue Peter," " Flight," " The Journal of the Royal Geographical Society," " Punch," " New Statesman and Nation," " The Spectator," " The Scientific American." Offers should be addressed to the Librarian before 15th January, 1936. Copies will be despatched as they are withdrawn from the Reading Room.

MUSEUM

Crimean Exhibition

A Special Exhibition of pictures, models, relics, uniforms, weapons, etc., associated with the Crimean Campaign of 1854-56 will be opened for the Christmas holidays and succeeding months.

Many additional exhibits are being lent and will augment the Institution's own valuable collection of relics of this period.

A selection of pictures from the Crookshank Collection will be a special feature of the Exhibition.

Additions

(8791) Walking stick of H.R.H. Field-Marshal the Duke of Cambridge.—Presented by Major F. Swaine.
(8792) Crowsfoot made in Khartoum Arsenal during the defence of that town by General Gordon.—Presented by C. H. Gordon.
(8793) Collection of medals—mint specimens.—Purchased.
(8794) Full dress coat of a Hospital Mate, 1811.—Presented by A. B. Hooper.
(8795) Shoulder belt plate, Lancashire Militia, 1850–60.—Presented by Lieut.-Colonel P. G. Whitefoord.
(8796) Collection of badges of Canadian units.—Presented by H. W. Carman.
(8797) Naval telescope of the Crimean Period.—Presented by Miss K. Henderson.
(8798) Full dress uniform, Royal Scots (Territorial) and two riflemen's busbies, 6th King's Liverpool Rifles.—Presented by Captain G. W. Haws.
(8799) King's Silver Jubilee Medal.—Presented by the Army Council.
(8800) Belt buckle, South Staffs Regiment.—Presented by Major C. Dawes.
(8801) Miniature water-line models of the men of war present at the Naval Review of 1935.—Purchased.
(8802) Model of a German battleship made by a German prisoner.—Presented by R. Macdonald.
(8803) Set of buttons bearing portraits of celebrities of the South African War.—Presented by W. Freeman.
(8804) Photographs of German and Turkish despatches intercepted at Teheran in 1918 by Lieut.-Colonel G. F. S. Napier.—Presented by Lieut.-Colonel G. F. S. Napier.
(8805) Three field orders written by the Duke of Wellington to General Sir Lowry Cole.—Presented by Miss M. Lowry Cole.
(8807) Prussian field service cap, Great War period.—Presented by E. J. Martin.

Attendance

The amount taken for admission during the past quarter was :—

£217 0s. 6d. in August.
£163 2s. 0d. in September.
£103 11s. 6d. in October.

Purchase Fund

This fund has been opened to assist in the purchase of new exhibits. The Council hope that it will receive the support of Members interested in the Museum.

THE FALL OF SEBASTOPOL

Reproduced from a picture in the Crookshank Collection

THE JOURNAL
OF THE
Royal United Service Institution

Vol. LXXX. NOVEMBER, 1935 No. 520.

THE WORK OF THE ARMY AFTER THE QUETTA EARTHQUAKE

By MAJOR-GENERAL H. KARSLAKE, C.B., C.M.G., D.S.O.

On Wednesday, 9th October, 1935.

FIELD-MARSHAL SIR CLAUD JACOB, G.C.B., G.C.S.I., K.C.M.G., in the Chair.

THE CHAIRMAN: General Karslake must be known to the majority of you, and when you read the account of the earthquake in Quetta, you must have learned what splendid work he did there. It was a ghastly thing—40,000 people wiped out in a few seconds.

I should just like to say that I endorse what a Commanding Officer wrote from Quetta: "Thank God, we had Karslake here!"

LECTURE.

I WANT first to get you into the picture of Quetta, so that you can realize the situation when the earthquake took place, and can appreciate fully that there could be no question of any one person doing everything. It was a case of everybody, from the top to the bottom, vying with each other to help the Indians.

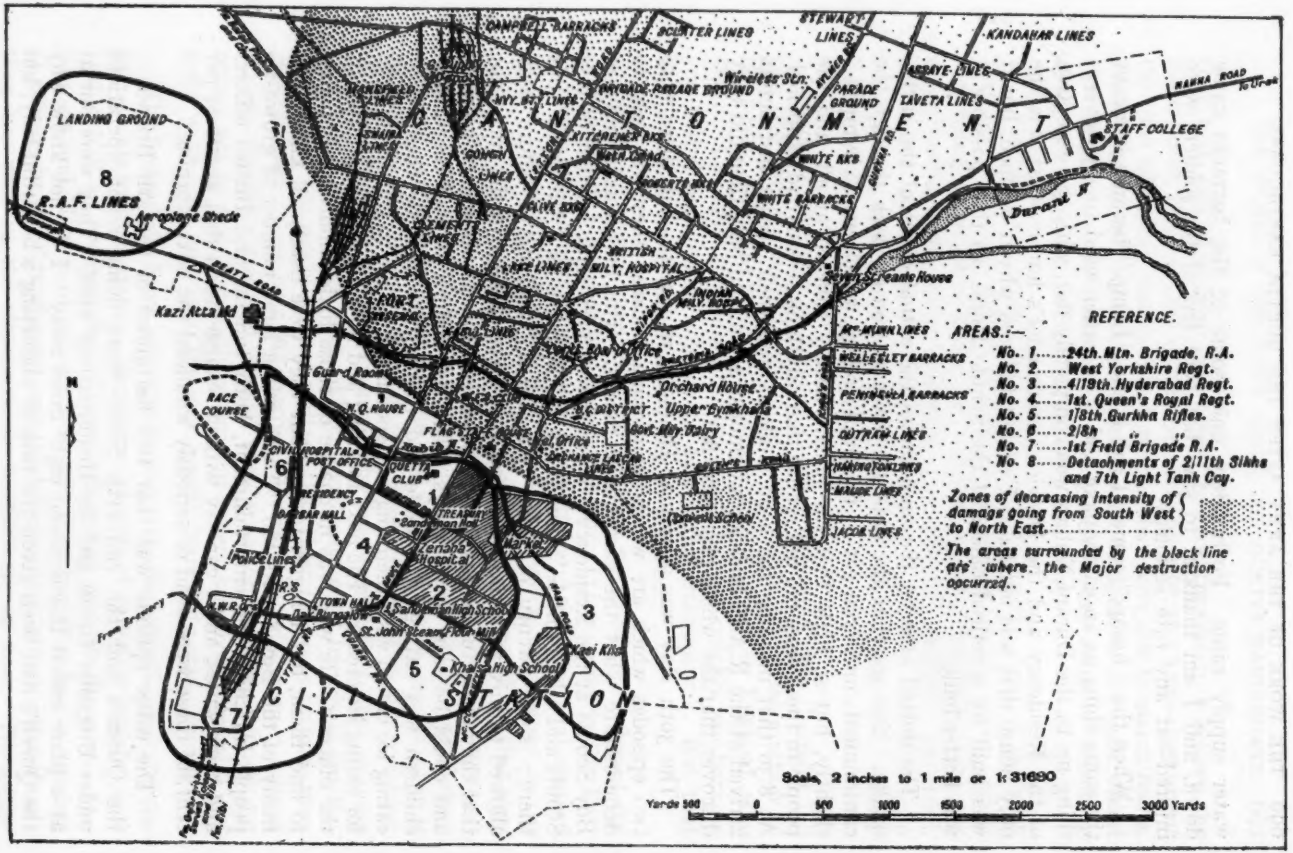
When you come up from Karachi by train, you enter Quetta at the bottom of the map.[1] There are two roads, one on each side of the railway, from the level crossing. West of the railway, were most of the railway employees in very inferior houses—crowds and crowds of them—and there was a bazaar for their benefit. A little further on, were the police lines; most of the police were living there except those actually employed in the city and in the cantonment. I have never been able to discover exactly how many police were in those barracks; all I do know is that we dug out and buried 172—they were all killed

[1] See next page.

almost instantaneously. Beyond the police lines, we come to the race course, with three polo grounds, a cricket ground and a 9-hole golf course. The race course was a great asset, as you will see later. East of the railway, was the main road going right through the cantonment, called Lytton Road. On one side of the road were the houses of the higher grades of railway employees. Three of those houses had been built, after the 1931 earthquake, with steel frames filled in with bricks, and those buildings bore no signs whatever of damage after the later earthquake; the furniture jumped about inside and the people were terrified, but the buildings themselves were all right. On the other side of the road were various bungalows belonging to the richer Indian gentlemen of Quetta. There was a hotel and also a *dak* bungalow, in which I regret to say there were a good many people killed. In this area were all the members of the executive staff of the railway, including the superintendent, Mr. Bean. Although he was hit by a brick and had to have his head bound up, the whole work of the railway came on his shoulders, and nobly he did it. Then we come to the political officers' lines. The Residency, where Sir Norman Cater lived, was a fine building, two storeys high, and it escaped completely crashing. Sir Norman Cater got out before very much of the building came down, and two other people who were with him in the residency, Major and Mrs. Hay from Kabul, also escaped. Others who had marvellous escapes were the Secretary, Mr. Weightman, and the Political Agent—Colonel Severn Williams, one of whose daughters was killed and whose wife had an arm broken. Next door was the Revenue and Judicial Commissioner, Mr. Gould, whose house was laid as flat as a pancake. Unfortunately he had staying with him, from the Government, a Mr. Saise, who had come to Quetta for sanitation purposes, and was killed. The Hengel Jones, who had been recently married, and Mrs. Bradford, the mother of Mrs. Jones, were killed also. East of the Residency, was the Quetta Club, and beyond that the city, with the two villages of Kasi and Nachery.

The Habib Nullah is the boundary between the civil lines and the military cantonment. On the other side of the military cantonment, up to the Durani Nullah, the Commanders and all the senior staff officers of both the Command and the District lived. The whole of that place crashed. Beyond the Habib Nullah, there were also the officers' mess and the officers of the 16th Cavalry, and the R.A.F. Mess and single officers' quarters.

The location of the married officers' quarters and barracks of the various British and Indian units are shown also on the attached map. Five or six miles further East was a place called Urak, whence our



THE QUETTA EARTHQUAKE

water supply came. Fortunately only some of the barracks came down, and I am thankful to say that very few of the soldiers were injured—at any rate seriously.

When the " bump " came—I call it the " bump " because it means the same thing as an earthquake and is an easier word to say—everything up to the Durani Nullah was completely flat, with the exception of the Residency and the District Commander's house—that was the only house that was not flat. I cannot tell you why it escaped, but it was built by a retired officer of the Scinde Horse, so that possibly it was better built.

The dotted area on the map shows the actual effect of the earthquake. You see that the dots get fewer as you go back through the cantonment, until you get to the Staff College, which was " bumped " slightly, but so little that the houses hardly suffered at all, and the people in the houses did not realize that anything serious had happened. At 8.30 that morning the keen students and their keener instructors arrived at the R.A.F. lines for a demonstration, and only then did they discover that the whole place was flat.

The 30th May was a normal Thursday in Quetta, but there were two episodes which are worth mentioning because they will help to demonstrate what the earthquake meant. The first was a rally of Boy Scouts at the Residency : there were a very large number of Boy Scouts and a lot of little " Blue Birds "—the name for " Brownies " out there ; some twenty of the " Blue Birds " had never before been allowed to mix with the boys, and they were thrilled to the core—not that they did actually mix, but they were within the Residency grounds and could be seen by the boys. The last sight I had of those little children was sitting at a table and thoroughly enjoying themselves, eating ice cream with their fingers—spoons are no use to Indian children for eating ice cream. The next morning and for several days afterwards the officer's wife who was in charge of those little children was trying to find them, but I regret to say that they were nearly all killed, and many of the Boy Scouts too. There was a large number of grown-up people watching the entertainment, both Indians and British officers and their wives, and I can say without exaggeration that about 20 per cent. of those were dead or seriously wounded the next morning.

The other episode was that two battalions of the 4th Brigade—the Queen's and the 2nd–11th Sikhs—were doing night operations under Brigadier Broad and his Headquarters' staff. They were out at at a place called Baleli, about eight miles away. I do not know why the Queen's had been given the task of abducting a beautiful lady, but

they had, and the Sikhs were trying to recapture her; I believe the Sikhs failed, but I am not quite sure. At any rate, at 3 a.m.—just about the time when the " bump " took place—they were due to march home. They were all thrown to the ground, and a bridge over the Lora, about two hundred yards from where the Queen's were actually marching along the road, was shifted bodily over one way.

Everybody else went to bed quite happily on the night of the 30th May, as we always did in Quetta—it is a most cheery place—never suspecting what was going to happen to us; but at 3 a.m. the next morning the most tremendous " bumps " suddenly occurred, and within 25 seconds or thereabouts, the whole of the area shown on the map was as flat as a pancake and tens of thousands of men, women and children were dead or seriously hurt.

Before I give you an account of what happened then, I might tell you two remarks made to me since I left Quetta, which were rather to the point. One was made by a battalion commander in England, who said: " I imagine the reason the troops got busy so quickly was because you had a ready-made scheme to deal with earthquakes." But that was not so, we were taken completely by surprise.

The other remark was made to me by a naval officer on board the ship in which I was coming home. He said: " I was out in the East and we read a lot about the doings at Quetta, and the thing that amazed us was the speed with which the Army got to work, because we, in the Navy, always look upon the Army as about the slowest thing that ever happened! " I did not know that was our reputation and at the moment I had not got a complete answer, but I think if you are in a dead sleep and are suddenly bumped off the bed and the house sounds as if it were going to crash on top of you, even the most sluggish soldier will act quickly. Another reason why we were able to get moving promptly was that we were all such extremely good friends in Quetta. As soon as the single officers realized that their troops were safe, they rushed down to see how the married officers were getting on. A third reason, possibly, was that we had been accustomed, when a crisis did occur, not to wait for pages of written orders but to get on with the good work. At any rate, the way people turned up was amazing.

The first people I saw were the Signals: the Signals are generally the first people to do anything. Down they came in their motor vehicles, and within half an hour of the " bump " they had men in the city. The Sappers and Miners, of course, were out at once; they had a number of officers in the " bumped " area, and they came to look after them; they too were in the city certainly within half an hour. The other

people who arrived very quickly were the Field Gunners; they came down in their lorries to see how the C.R.A. and the O.C. Field Brigade were. The West Yorks saw fire in the city; they commandeered any motor vehicles they could find, and down they came. The Gurkhas had a guard on the Residency, and they seized some officers' motor cars and rushed down to see how their guard was: three of them had been killed—they were the only soldiers actually killed during the earthquake.

Now what was the situation after the " bump " ? It was pitch dark and all the telephone wires were down. Three fires had started in the city itself; but otherwise we could not see anything. As we went along the roads, we could make out the flattened houses, and called out to see if there was anybody alive; sometimes we got an answer; sometimes a woman would rush out covered with blood and implore us to bring help. That was the sight that met our eyes in the early morning before daylight.

I do want to emphasize—because I do not think people quite realized it at the time—that, apart from the city and the civil lines, many British officers suffered heavily. About eighty of them lost their homes: they lost everything—all the little knick-knacks and treasures which they had had for years, their carpets, their rugs and their clothing. Officers whose wives were in this plight, or who had lost children and whose wives had been badly injured, simply took their wives to the hospital or to friends and then got on at once with their work. There was no hesitation on the part of any officer whose house had crashed, in trying at once to do something to help the Indians in the city. As to the ladies, they were perfectly wonderful; practically every lady in Quetta offered her services in some way, and I can say now, without the slightest hesitation, that if it had not been for them, hundreds more Indians would have died. They went round washing the wounds of these poor people—most dreadful wounds—and preventing them becoming septic. I remember that the late Lord Kitchener thought it was quite wrong for officers to marry. All I can say is: Thank God, many of the officers in Quetta were married, or had friends staying with them, and I sincerely hope that I shall never be in a military station without plenty of wives!

Up to about 6 a.m. it was dark and we did not really know the extent of the damage; but by that time we had got something like seven thousand troops detailed off to the various areas and they had already cleared the British part and were in amongst the Indians. The garrison of Quetta was about twelve thousand, and I am putting it at a low figure when I say that about seven thousand never stopped working the whole of that day, that night, and the whole of the next day.

The battalion commanders arranged everything as if it was war: they had their aid posts, and their cooking places to keep the troops going. I had to stop them myself the second evening and tell them to reduce the number so as to give some a rest. Even so, I know of a case of a lance-corporal in charge of a party of the West Yorks who, when he was told to break off, said: "No, an Indian has just come up to say there is somebody still alive under a heap of débris, I must go on digging until I find him."

When daylight came, the situation cleared and we were able then to realize what we were up against. The Royal Engineers, like everybody else, had gone about their business, and I had a report that the water supply was all right. The mains had broken in the cantonment, but the Sappers and Miners soon put that right, and at no time was the water cut off from the city or from anywhere else until it was ordered to be cut off.

We did not know the condition of the railway, and we did not know whether the Bolan Pass was still available and whether trains could get through it. Therefore everybody was put on short rations at once. We estimated that we should have to feed not less than 40,000 people every day, and it was arranged to reduce the rations so that we could keep going for a month. The rations were bully beef and biscuits, and I believe we all enjoyed them thoroughly.

The next problem was the disposal of the wounded and the dead, and to begin with we did not know, of course, what numbers we should have to deal with. The wounded we disposed of comparatively simply, because we established aid posts and collecting posts with lorries at various places, from which they were taken to the hospitals. By noon on the first day, the Indian hospital—all the buildings of which were cracked and unfit to put patients into, and which was normally intended at full capacity to take about 400 patients—had over 1,000 badly wounded Indians; by the evening it had about 3,000. The handling of the wounded—carrying them to the lorries, transporting them to the hospital, and lifting them out of the lorries, was a colossal job. Fortunately we had about 200 Indian Hospital Corps men under training, and they worked like Trojans.

With regard to the dead, those of you who know India will realize that Hindus had to be burnt, but Mohammedans must not be burnt; so at each burial place we had two men, a Mohammedan and a Hindu, responsible for identifying the bodies as they were brought in, so that they would be disposed of properly; I never heard of any complaint whatever about a Hindu being buried or a Mohammedan being burnt.

The cremation process was by no means as simple as might be expected ; we discovered that it was no good taking firewood and making a fire in the ordinary way ; we required tons of wood—I believe we used something like 14 tons in all to burn the Hindu corpses. That wood had to be loaded into lorries and taken to the funeral place and unloaded there.

The very trying task of collecting the mass of dead bodies was greatly eased by the splendid work of a contingent of Rover Scouts from the Punjab, under Mr. Hogg. They included high caste Brahmans, Hindus, and Mohammedans ; but they were Scouts before all else at this time, and worked together without distinction of creed, often in gas masks, removing corpses, whether they were sweepers or any other bodies.

The British and Indian Christians were all buried in the British cemetery. Then there were the refugees to be dealt with—thousands and thousands of these poor people rushing away from the city, and without food. What was to be done with them ? We decided that the race course was the place for them, so we rounded them up into that locality. But it is one thing to deflect a mob of 10,000 to 15,000 people into an open space, and quite another to organize them so that they can live happily together, because a Mohammedan cannot live in the same tent or even in adjoining tents with Hindus. We had to make camps for Mohammedans, camps for Hindus, and camps for Anglo-Indians. The Parsees looked after themselves ; most of them had been killed, and the bodies were buried, of course, in the Parsee cemetery.

All this mass of people on the race course had to have water, and what was even more important, sanitation. The Sappers started laying pipes at once, and by the evening there was an extra water supply in three places for the refugees and quite a large proportion of the necessary sanitary arrangements had been provided—not that it made much difference !

Another problem was the housing of the refugees, including the officers and their wives, whose houses had been destroyed and who had nowhere to sleep. The days were hot, but the nights were too cold for people to sleep out. Therefore we had to organize convoys of lorries to distribute tents to all the people who wanted them. We had a company of the 8th Gurkhas who were experts at pitching tents—one of the favourite exercises of this regiment was to make squads pitch tents blindfolded. They put up an enormous number of tents on the race course that evening.

That will give you some idea of the arrangements we made for helping those poor creatures, most of whom were so dazed that they could do nothing for themselves. To help keep their minds off the tragedy, the Gurkha pipers and the band of the Queen's played on the race course. Tennis balls and footballs were provided by units, and a gramophone with amplifier and loudspeakers played Indian records every evening for two hours.

The civil administration had ceased to function, because, although there were three senior Political Officers alive, all the members of their staff were killed or injured. Sir Norman Cater's kingdom had been practically wiped out, and he realized, at once, that it was necessary to proclaim martial law. This step apparently caused some stir in other parts of India; some people apparently visualized the whole of the Quetta garrison, armed with machine guns, wiping out everybody who had not been killed in the earthquake! But, obviously, somebody had to take charge and give orders, and he had to be somebody with the means of making them known and having them carried out.

The proclaiming of martial law also gave us power to do certain things which cannot be done under the ordinary law. For instance, under the ordinary law, the railway authorities could not be told to stop issuing tickets to Quetta, and if any ticket-office clerk had refused to do so, he would probably have been sent to gaol—it would have been absolutely illegal. We wired to the Commissioner of Sind and the Governor of the Punjab, to ask them to do so, but we discovered that it could not be done. When we had martial law, however, I sent down a little party, known as the "Tigers of Sibi," and they sat at Sibi Station, in a temperature of about 125 degrees in the shade, and had the time of their lives. Masses of people tried to come up to Quetta, but they only got as far as Sibi and back they went! It was all perfectly good humoured—there was no unpleasantness, but we really could not have any more people in Quetta under the existing conditions. That was one reason why we had to have martial law.

The Assistant Judge Advocate General at Headquarters was invaluable in the matter of interpreting martial law; he produced all sorts of papers for me to sign and I signed them: it all went perfectly smoothly.

Although the civil administration had completely crashed, the Political Officers did all they could to help; they attended all the conferences, and had opportunities to say anything they liked and to make suggestions. One of them said to me when I left, that he could not have

believed, from what he had always known of the feeling between the political and the military authorities, on occasions when martial law had been declared, that everything could go so smoothly. So much for martial law!

Then a most exciting event occurred—a train came in; that was very good news, because it meant that we could get food in. But the train brought a very large number of mail bags. What were we to do with them? The Indian staff at the post office was either dead or dispersed. However, the Chief Signal Officer took on Post and Telegraph Officer, and he got to work. At first the method of sorting letters was not strictly orthodox—the bags were brought up to the Quetta Club and emptied on the lawn; then people rummaged amongst the pile for their own correspondence. Most of the Europeans got their letters, but the difficulty was to know what to do about the Indians' letters. Eventually an information bureau was set up on the race course and with the help of various Indians, it was made known that at a certain place letters were available, and would be looked through on application. The bureau also helped to connect patients in the hospitals with relations on the race course.

Thanks to the Royal Engineers again, we had electric light once more and a searchlight on a scaffolding lit up the whole of the refugee camp all night.

On the very first day, we realized that one of our great difficulties would be to replace the Indian personnel and to provide for the necessary labour. On the outskirts of Quetta, is a village called Nachery, inhabited almost entirely by Hazaras—the remnants of the old Hazara Pioneers, who had been abolished only a few years previously. We asked them to come and help and offered the ordinary rates of pay; that day we had 500 of them and within a few days 1,500 of them were at work. Their old officers turned out in their former uniforms, complete with medals and ribbons, and took charge of the gangs.

Having started all this work, we arranged for an air reconnaissance of the surrounding villages. Terrible devastation and loss of life were reported, so a Staff College officer was put in charge to organize food and medical assistance.

For about four days, everybody was at it night and day. The doctors, of course, had the most strenuous time, with 3,000 wounded to deal with the first day and 5,000 the second day. Extra doctors, nurses, and equipment were applied for at once, and some arrived by air and some by train. Incidentally, one party of assistant surgeons who came by air expressed the hope that they would go back by train!

It is almost impossible to give accurate statistics about the hospitals, but, as an example, one surgeon told me himself that on the first day he had done fifty-three, and in three days, a hundred and fifty-seven major operations. I believe the total number carried out was about four hundred and fifty, and I was told that not a single case became septic; this was all the more remarkable considering that, during the first day or two, we had not even got tents for all these poor people. In the British hospital, fortunately, we had only about two hundred casualties, but that was quite bad enough. The demands sent in were colossal. The Senior Medical Officer had to admit that in one case somebody had put on an extra nought. This was a demand for plaster of Paris, and I believe that more was asked for than the world has ever been known to produce in one year! However, the authorities realized this, knocked off the nought, and sent us what was really wanted. Afterwards I was told that I had asked for 100,000 lbs of soap. "Did I?" I said; "Yes, and we sent it," was the reply. Apparently we did require an enormous amount of soap in the hospital—not so much for the Indians, as for those who were looking after them.

Clothing was another thing that we had to think about. An officer from the Staff College was put in charge of that department, with some ladies to help him. Wires were sent to Lady Willingdon and Lady Chetwode, and the Viceroy's aeroplane brought "saris" and other things for the Indians, and soon everybody was provided with some sort of clothing, where, previously, many had practically nothing.

Now I come to the part played by Army Headquarters, and here I want to make it clear that, in my opinion, there is no army headquarters in the world to touch that in India at the present moment. Directly it was known what had happened in Quetta, everybody at Army Headquarters offered and sent us all kinds of things, and backed us up in every way. So did the Government of India.

Army Headquarters sent us two companies of Bengal Sappers and Miners, and a Road Construction battalion, two Sanitary Sections, and a Field Ambulance. The latter came from Razmak in lorries, and within forty-eight hours were working in Mastung. The Bengal Sappers and Miners did excellent work; one company was put on to build a temporary new Quetta; and they had to lay water pipes, make sanitary arrangements, and level off the sites. The young officers of these companies told me they could not have had such good training if they had been in the Army all their lives: they enjoyed every minute of it. They blasted rocks, built a new bridge over the Lora, and did all kinds of work. The Sanitary Sections were composed of a few British

soldiers and a large number of Indians, and such was their enthusiasm, the poor Indians on the race course did not know whether it was Sunday or Christmas Day—they were so clean! We were constantly being warned by visitors from Headquarters that we were bound to have a bad epidemic; but I was convinced we would not, and I forbade anybody to mention the words "cholera" or "dysentry." As it turned out, there was less sickness in Quetta that summer than there had ever been before. The medical officers were naturally very anxious about an epidemic, and rightly so; but we took their advice, even though at times it seemed a little excessive, and all was well.

The Royal Indian Army Service Corps did magnificent work. In the supply depot all their checkers and lower grade personnel were Indians, the rest being British warrant officers. I believe that, out of about fifty of those Indians, only six survived, yet, in spite of that the Corps issued 40,000 to 45,000 rations a day from the first day. I hope that will not lead some politician to say that our normal staff must have been far too big; it is true that this small party, by superhuman efforts, kept things going, but they could not have gone on indefinitely. Again Army Headquarters came to the rescue, and in two or three days extra Indian staff arrived.

The Indian lorry drivers of the mechanical transport were extraordinarily good. During the month, from the 31st May to the 28th June, we had about three hundred motor vehicles rushing about Quetta like fire engines—every driver thought he had to arrive at his destination more speedily than anybody else; but, during the whole of that time, there was not a single case of two motor vehicles colliding—in spite of a number of the West Yorks being put on to traffic control! The West Yorks would take on anything. They looked after people in hospital, and when the children were brought in, it was a West Yorks orderly who took charge of them and did everything for them. When it came to traffic control, they put on white sleeves, and although they did not know anything about traffic control except from what they had seen in the streets, they did it as though they had been born to it.

The Arsenal always had looked like a Heath Robinson drawing, but it looked worse after the earthquake. All the places in which the stores were kept had been flattened out and were covered with bricks and dust; but enormous demands were made at once for every kind of tool—picks, shovels, lanterns, and so on, which were badly needed. Thousands of blankets and tents were also required. Yet, here again, the Indian personnel had suffered severely in the earthquake, and only the British warrant officers were left.

We went on rescuing people and clearing away the débris for about five days, and then we had to shut down. But the work did not end then, for we turned the soldiers on to salvaging people's property. Every householder outside the city whose bungalow was down was given a salvage squad, and I am thankful to say that a very great deal was recovered. At the end of about ten days, the whole of the civil lines outside the city had been salvaged, and everybody had been given back any of his property which was worth having ; most of it, of course, had been destroyed in the earthquake.

We put up a barbed wire fence round the city—a really good one, not of the British pattern, but more like a German one—so that nobody could get through ; it was about eight feet high and really thick. Our own police having disappeared, extra police arrived from the Punjab and from the North-West Frontier Province. They were excellent fellows and took charge of part of the city, while the troops looked after the part bordering on the cantonment. Ultimately it was the soldiers who supplied the instructors for the new police, who had been enlisted in the Punjab.

The final episode was the visit of Their Excellencies the Viceroy and Lady Willingdon, and His Excellency the Commander-in-Chief and Lady Chetwode. When we heard that the Viceroy was coming, I said to some of the battalion commanders : " We must have a parade. How long will it take you ? " They all said : " Give us twenty-four hours and we will put up the best show the Viceroy has ever seen." I have seen a good many parades in Quetta, but this was the finest of them all. I do not know how many troops there were on parade, but I should think about 10,000. Two units, that had never been on parade before, asked that they might be included, and one battalion which was due for work round the city asked that Gurkha recruits might relieve them, so that they could attend. The Viceroy said he was afraid that it was rather hard on the troops to have to take part in a parade after all they had been through, but I was able to tell him, what was the fact, that the troops were delighted to be there.

A typical kindly action by the Viceroy was, when I asked him to say a word or two to the Hazara ex-officers, that he shook hands and had a chat with every one of them.

In the time available I have been unable to describe many other services rendered after the disaster, such as patrols of the 16th Cavalry out in the country, the organization of a dairy to provide milk for the refugees, and co-operation with the Press ; but I hope I have said enough for you to realize what a truly magnificent crowd of people we

had in Quetta when the earthquake took place. I can only end by saying that I do not believe there is any army in the world, to-day, to touch the Army in India.

THE CHAIRMAN:

I think you will agree with me that the account which General Karslake has given us of the wonderful things that our Army did in Quetta has been well worth coming to hear. The Lecturer has not said anything about himself, but those who were in Quetta during the earthquake or saw Quetta after it, have all said the same thing: "I do not know what we should have done if it had not been for General Karslake."

I have known the Lecturer for a good many years. He is a great commander, and is able to get things done. I am convinced that if we had had somebody there who had not his forcefulness, the catastrophe might have had far worse results.

I spent a great many years in Quetta, and it was very pleasant to hear that some of my old regiment, which I raised in 1904, and of whom a good many pensioners are still living in Quetta, did so well in this catastrophe. They were perfectly magnificent when I knew them, and you should have seen the way they made roads up on the North-West Frontier.

Before I close, I should like to say that one of the many fine men in Quetta arrived in England last week and came to see me—Dr. Holland, a medical missionary. He and his son, who is also a doctor in the mission, were buried in their houses and had to be dug out. He described some of his experiences to us the other evening. One incident he told us about is rather pleasant amidst so much tragedy. The Political Agent had two daughters; one was killed and the other was found fast asleep. She did not realize that anything had happened, and when she was awakened she said: "Why on earth have you called me so early? It is not *chota hazri* time yet!"

I ask you to give a hearty vote of thanks to General Karslake for his most interesting lecture, and to show by your applause how much you have appreciated it.

The votes of thanks to the Lecturer and Chairman were carried by acclamation.

THE DEFENCE OF THE POPULATION AGAINST AIR ATTACK

By WING COMMANDER E. J. HODSOLL, C.B.

On Wednesday, 23rd October, 1935

THE MOST HON. THE MARQUESS OF LONDONDERRY, K.G., M.V.O., in the Chair.

THE CHAIRMAN: I should like to say how grateful I am personally to Wing-Commander Hodsoll for coming here to give us this Lecture. He is a very old friend of mine; we have worked together on the Committee of Imperial Defence for some years, and in the difficult position which I occupied until quite lately no one could have given me better or more constructive assistance than he did.

LECTURE.

IN the late war this country had its first experience of raids by hostile aircraft, and even though the scale of such raids was small, they exercised a not inconsiderable moral and material effect.

Some eighteen years have elapsed since the last air raid took place, and the design and performance of aircraft has steadily advanced and, in the nature of things, must so continue. It may not, perhaps, be an exaggeration to say that every year sees the speed, weight-carrying capacity, and ceiling of bombing aircraft tending appreciably to increase, and these factors inevitably affect the problem of active defence. But, however good that defence, it is generally accepted that it will be impossible to prevent a proportion of determined hostile aircraft from reaching their objective.

It is for this reason that the problem of what is perhaps rather loosely known as " the protection of the population " has arisen. I should like, first of all, to define this expression rather more clearly. Hostile air attacks on any considerable scale may cause damage, not only to life but also to property, and may also be expected to interfere with public services of all kinds. When we talk about protecting the population against air attack, therefore, it is quite true to say that we mean primarily the taking of such measures as may be possible to protect life, but we mean also the taking of such other measures as may be practicable to try and enable existence to be carried on, whether it be in normal or abnormal form. And this means the maintenance of

supplies of water, gas, electricity, food, and means of communication, without which life as we know it to-day would be intolerable or even, in the last resort, impossible.

Air raid precautions, therefore, must be of an all-embracing nature, and they are essentially complementary to the work of the three Services. It is a very old military maxim that operations must be conducted from a secure base, and if one can look upon this country as the primary base of those Services, then it is clear that all measures necessary for the security of that base in time of emergency ought to be taken.

The humanitarian aspect of this problem is of no less importance. The scope of war has so vastly increased that it may indeed become a personal matter to almost every inhabitant of a country; and great numbers of people may, in the future, find themselves in positions of considerable danger, even though they are many miles removed from the scene of hostilities. The responsibility of a Government for the protection of the people on its territories which, till comparatively recent times, could be fulfilled by the provision of adequate defence forces, has now inevitably been extended more or less to the whole population. The problem of defence has, therefore, become vastly more complicated.

The three dimensions in which they can operate give to aircraft a freedom of manœuvre which is unique in character and greatly increases the chances of sudden and surprise attack. For this reason it is essential that any population, or area, which is within range of the aircraft of another country should have such pre-arranged protection as may be possible in the circumstances. Thanks to our island position we have for many centuries been spared the horrors of invasion, and it is something quite new to the population of this country to be asked to think about the question of their personal security in time of emergency.

Now let us consider the difficult question of the scale on which preparations can or should be made. Here again one is faced with a problem of great uncertainty which is governed by the mobility of aircraft and their ability to change direction from one target to another while operating from the same base, or even after air attack has been set in motion. In other words, and subject of course to the action which the defence forces can take, the initiative rests with the enemy, and, within certain limits with which you are all familiar, he has liberty to concentrate or to disperse his attacks in accordance with his ideas as to how the maximum effect can be produced. It is clear, therefore, that any particular area might at any time be subject to a maximum scale of attack. I think you will agree with me, however, that to attempt to make preparations to meet this maximum scale everywhere would be

impracticable and a violation of the principle of economy of force. We are, however, with the assistance of the Air Ministry, endeavouring to base our plans on what I might call " the average precaution " ; that is to say, we are trying to arrange our organizations and protective arrangements on a scale which, while it bears a reasonable relation to the weight of hypothetical attack, at the same time takes into account local circumstances and conditions, and the personnel and resources available.

Under this system, as you will realize, it is possible that the weight of attack in any one place may possibly exceed the scale of preparation provided. If this happens, we are relying on a system of mutual co-operation and reinforcement, on the assumption that, if one area is heavily bombed, other areas within reasonable distance will probably receive less damage—if indeed they receive damage at all. In this way it is hoped that, while keeping the whole scale of the preparations on a reasonable basis, it may still be possible to meet exceptional cases if and when they occur.

I have already referred to the question of air raid precautions as being essentially complementary to the work of the Services. Clearly the Services themselves have a definite responsibility for such arrangements and organizations as may be required for their own establishments. Naturally there should, where necessary, be close co-operation and co-ordination in any such arrangements between the Service department concerned and the local authorities ; and it may frequently be found in dockyard or military garrison towns that certain of the essential services, e.g. water supplies, on which dependence is placed, are under the control of the civil authorities or corporations.

There is also, of course, a certain imperial aspect to this problem and, although the new Air Raid Precautions Department has been set up primarily to deal with the situation in this country, it will be available for consultation on any problems in the overseas Dominions or Colonies.

GENERAL ORGANIZATION.

I should like now to describe briefly the organization which is being framed to meet the situation.

The main responsibility for the direction of air raid precautions rests naturally on the central Government, and the Air Raid Precautions Department has been set up for the purpose of directing and co-ordinating the policy in general. This Department is a division of the Home

Office, because the whole essence of the system is civilian and the Home Office is, clearly, the most appropriate Department to assume this responsibility. In addition to the Home Office there are, of course, a number of other Government Departments which are very intimately concerned with this question. The new Department does not in any way cut across or interfere with responsibilities which those Departments would normally undertake. It does, however, act as a general co-ordinator, and works in the closest touch with those concerned in the preparation of general schemes.

Local arrangements and organizations are the responsibility of the local authorities concerned. You will, I know, realize that it would be quite impossible, besides being very undesirable, for the central Government to attempt to arrange the whole of the detailed organization which is necessary all over the country. This is a task which it was felt could best be undertaken by the local authorities themselves in the light of their particular knowledge of conditions in the areas for which they are responsible.

Certain equipment and stores will be required for essential air raid services: for example, the police, fire brigades, first aid services, and the decontamination services. For these the Government have undertaken the responsibility of supplying respirators, protective clothing, and bleaching powder, and they are also establishing a central Gas School for the training of instructors. The tasks which the local authorities are being asked to assume, therefore, are mainly ones of organization, which will include the framing of plans and the examination of the facilities which might be required.

As I have already pointed out, each Service Department has a responsibility of its own for establishments under its charge, e.g. dockyards, although close co-ordination is necessary between the local civil arrangements and those in the naval, military, or air force establishments.

London is being treated as a separate problem. While the general principles will be the same as in the provinces, the system of local government in London is such as to make it necessary to adopt slightly different methods. The local government of London is divided between the City, the London County Council, and the Metropolitan Boroughs, and the majority of essential services are in the hands of public utility undertakings. Certain matters will, for convenience, be dealt with centrally, and at some stage the whole arrangements for London will have to be co-ordinated; but at the present stage the intention is to enlist the co-operation of the various units in considering their particular

problems, and when this has been done, to examine the position in order to see to what extent co-operation and co-ordination are required.

In the provinces, the policy is for each local authority to be responsible, so far as lies within its power, for the arrangements within the area which it controls. The easiest case is that of a county borough which is normally self-contained in respect of all its services. Outside the county borough the situation is more complicated. There are many important non-county boroughs, some of which have their own police forces, and others which are served by the county constabulary. Here again co-ordination within the county is clearly essential, and we are asking the county councils to act as the general co-ordinators for this purpose. The same principle is, in fact, being applied as in London; that is to say, various units are being asked to examine the problem, and subsequently arrangements will be made for such co-ordination as may be required within the county itself. At a later stage it will be necessary to extend this co-ordination between the counties in order that the fullest use may be made of the resources of the country as a whole.

The principle of using existing organizations and services wherever possible is being generally applied. There are many advantages in this practice on which I need hardly enlarge. In the case of the majority of the most important services it should be possible to adapt existing organizations with little or no difficulty. The police will undertake the same duties as in normal times, though these duties may be more onerous. The same is true of the fire brigades. The first aid and hospital arrangements will be under the direction of the Medical Officers of Health, and the St. John Ambulance Association, British Red Cross Society, and the St. Andrew Ambulance Association in Scotland, have all promised to help and assist in these organizations so far as they can. In London, the St. John Ambulance Association and the Red Cross Society are actually taking over the entire responsibility for the first aid and decontamination of personnel posts, and also for assisting in the ambulance services.

It is proposed that the sanitary services shall be adapted for the purpose of providing a decontamination organization, and that the highway authorities shall, in addition to their normal functions, undertake such work as may be required in connection with the clearance of débris, and so on. In regard to essential services, such as water, gas, electric light and power, transport, and docks, the undertakings operating such services will be asked to assume responsibility for such repair work as may be required. This is, in fact, a principle which is being applied to business undertakings generally.

There are really only two completely new organizations which are at present contemplated. The first of these is the very important one of gas detection. It is considered that, in some areas—certainly in every urban area within the potential danger zone—there must be a certain number of persons trained in the detection of gas. Their duty will be to proceed to any place in which the presence of gas is suspected, to endeavour to diagnose the type of gas, and to warn the police and anybody else concerned that a certain area is dangerous. On receipt of this warning, action can then be taken, either to render the area safe by decontamination or to take such other precautions as may be desirable in order to safeguard the general public. Arrangements will, also, clearly be required for obtaining samples of gases dropped in order that they may be analysed. The actual analysis will naturally not be part of the gas detectors' normal work, but they may have to be responsible for collecting samples. It may also be desirable—though I put forward this suggestion at the moment rather tentatively—to have a gas expert attached to important centres, rather on the analogy of the gas expert who, in the last War, was attached to corps headquarters. There are bound to be many questions arising on which the advice of a fully qualified expert will be desirable.

The other new organization, which again is only in a very tentative form, is that of street wardens. In a number of foreign countries, notably Germany and Austria, a system of house wardens has been developed; that is to say, in each house or block of flats one or two persons are detailed to be generally responsible for the precautionary measures to be taken in that building. There is a good deal to be said for providing some link between the man in the street and the local authority—what would amount, in fact, to a personal link. We are now considering the suitability of applying some system of street wardens to our organization. The idea would be to arrange for one or more responsible persons to be given a street, or block of streets, as the case may be, in which they could act as the general guide, philosopher, and friend to the persons living in their area. There are a number of duties which I can foresee—although perhaps they are rather of an undefinable nature—in which the presence of personnel of this kind would be of the utmost value, and I think they would fill a gap in the organization which clearly exists at present.

DETAILED ORGANIZATION

I will now outline, very briefly, some of the more detailed parts of the air raid precautions machine.

Warning System.

A system of warning the population is obviously of importance. The warning may be of two kinds, and must be governed by several considerations. Those people who may have definite action to take must clearly have as long an advance warning as is practicable, and the general public ought, also, to be given warning in time for them to take such steps for their safety as may be possible. Another consideration of importance is to avoid undue interference with industrial and other activity.

A warning system is being developed on these lines ; the actual issue of the warnings will be arranged by the local authorities concerned. The receipt and issue of warnings is a matter for co-ordination between the Air Ministry, the General Post Office, and the Home Office. The general direction of arrangements will be centrally controlled.

Lighting Restrictions.

Here again, general control will be a matter for the central Government, though the carrying out of regulations and instructions will rest locally.

The problem of lighting restriction is a very vexed one. While the complete darkening of a town or area may not prevent hostile aircraft reaching their general objective, it may make accurate bombing of particular targets more difficult. Two recent examples of complete " black-outs " in large towns abroad are instructive. Both in Berlin and Vienna " black-outs " on a wide scale were arranged, and from observations made by persons flying over the areas there is no doubt that the darkening was extremely effective. The extent to which it is possible, however, to apply complete darkening over any extensive period is another matter. It is one thing to do it for half an hour for purposes of a special exercise ; but it is quite another matter to contemplate such action as a permanent or semi-permanent feature. Clearly the greater the degree of darkening the better ; but questions of public safety and industrial activity must be carefully weighed before any final decision is taken.

I think it will be safe to say that, in any future emergency, lighting restrictions will have to be far more drastic than they were in the late War, and such public lighting as cannot be quickly switched off centrally may have to be permanently extinguished. There is still, unfortunately, a number of towns in which gas is used for public street lighting, which could only be put out by dealing with each lamp separately by hand. Such a procedure would obviously be impossible in time of emergency, if an attempt has to be made to darken any place quickly.

First Aid and Decontamination of Personnel.

The organization of first aid and hospital services is proposed on lines analogous to those used by the Army; that is to say, there will be a system of first-aid posts, casualty clearing hospitals, and base hospitals.

The first aid and decontamination of personnel posts will, wherever possible, be combined with mobile first aid units, whose chief purpose will be to deal with immediate casualties in the streets or elsewhere. These posts will be established at suitable intervals. Behind them, there will be the casualty clearing stations, which will generally be an existing hospital or hospitals in a town; and, beyond this, base hospitals will be located in areas less liable to attack. An ambulance service is, also, a very important part of the whole organization. I think there may also have to be convalescent homes, though this is a point which is still a matter for consideration. It will, however, be necessary to dispose of casualties from hospitals as quickly as possible if the demands on their resources are not to be too severely taxed, and convalescent homes may well be the most convenient way of dealing with the problem.

We are proposing to combine decontamination of personnel with ordinary first aid. The conclusion was reached that to attempt to separate these services would probably only result in difficulty in an emergency, and that a person who became a casualty from whatever cause would obviously go to the first place flying the Red Cross flag, and would clearly expect to receive treatment there at once. In practice it will be essential to keep the two types of casualty sufficiently separated to ensure that there shall be no risk of persons not contaminated by gas becoming infected. This is a matter of arrangement, however, and should not present any particular difficulty. Similarly the casualty clearing station, and, to a small extent, the base hospital, must be prepared to deal with persons who have received contamination.

Fire Services.

The fire service will have a heavy responsibility in time of emergency. I think probably the question of fire will present one of our gravest problems.

One of the difficulties which may certainly arise is in regard to personnel, because the reserves at present available are either non-existent or would probably be totally inadequate, and it is not possible suddenly to turn an inexperienced individual into a fireman. There may also be a shortage of equipment, and there may be difficulties in regard to supplies of water. All these aspects of the question are being considered; but it is very obvious that far closer co-ordination will be

necessary than exists everywhere to-day, and in this it is hoped that the Committee which has been appointed under the chairmanship of Lord Riverdale may be of considerable assistance.

The general public must have a certain responsibility themselves for helping to deal with this fire problem ; that is to say, it is of the greatest importance that every individual householder or other person responsible for a building or premises should take such immediate steps as may be possible to try and restrict the outbreak of fire. In this connection it is interesting to note the very active steps which have been taken, for example, in Germany to instruct every householder to remove all inflammable material from attics and to keep supplies of water and sand available in case of emergency.

ESSENTIAL SERVICES.

All practicable steps must be taken to maintain those services which are essential to the life of the community at as high a level of efficiency as may be possible in the circumstances. Damage to these services may occur either at the source of supply or in the distributive organization.

Certain action can be taken to provide physical protection at important and vital points such as pumping stations ; but, in the face of determined attack, such precautions obviously could not be more than partially effective. The question of protecting distributing arrangements is even more difficult, and the problem in the main, therefore, resolves itself down to one of organization and alternative sources and methods of supply.

The first step is clearly an examination of existing facilities and an appreciation of how alternatives might be used if such facilities became disorganized or destroyed. This field of activity must cover a very great variety of services ranging from water, gas, electricity, through means of transport, to supply and distribution of food and other commodities.

Another point of very considerable importance is the action that could be taken to reduce the risk of bulk supplies of important commodities being destroyed *in situ*. Ability to distribute supplies must depend on facilities in parts of the country less liable to air attack, and particularly on ability to re-orient existing transport arrangements.

Intelligence and Communications.

A very important part of the organization must be the provision of reliable means of communication and quick intelligence. So long as the existing systems of communication remain in operation, obviously

they will be used; but the position may well have to be faced in which emergency and more primitive methods have to be adopted.

On an efficient intelligence service will depend to a large extent the efficiency of the whole system. Without good intelligence it will be impossible to employ the forces available in the most economic manner; and, as I have already pointed out, the arrangements contemplated rely on ability to reinforce one area from another to avoid having to make preparation on a scale which might prove impracticable. This must primarily depend on good communications and intelligence.

Road Repairs and Clearance of Debris.

The highway authorities are being asked to undertake this work. It is a certain extension of their normal responsibilities; but it would seem to be the most appropriate method of dealing with this requirement.

The closest co-operation will be essential between this service and other undertakings whose services may be affected, e.g., water, gas, electric light, and so on, and it may even be impossible for any work to be begun at all until the decontamination squads have got to work.

The general idea is that repair gangs should be organized to be available to deal with damage to their areas. There may be cases in which damage is widespread and resources are insufficient to deal simultaneously with the whole area; in such cases priority must clearly be given to the most important roads, and it may well be advisable to schedule beforehand those places which are of first importance.

THE GENERAL PUBLIC.

Before ending, I should like to say a word about the question of the protection of the public in general. This problem can best be considered in two parts; that is to say, individual protection, and collective protection.

As regards individual protection, responsibility must rest on every householder or occupier of premises and employer to take such steps as may be possible for the protection of the people in his or her house or office. Our general ideas, which I think are shared by the majority of other nations who have considered this problem, are that the public must be instructed to remain indoors in a gas-proof room in so far as this is possible. Very simple instructions will be made available showing how a room can be gas-proofed for a comparatively trifling sum of money, and also giving such other information as may be useful to a householder; that is to say, simple first aid precautions and action to try and prevent the spread of fire; also behaviour if caught outside in a raid. The question of the best location for a gas-proof room is also dealt with. Our advice may briefly be summarized as follows:—

If there is a convenient basement or cellar, that is the best place to use for the gas-proof room, since there is far less danger there from the blast or splinters of high explosive bombs. If there is no basement, then a room should be selected in accordance with the type of house. In a two-storeyed house the gas-proof room should be on the ground floor ; and in a house of more than two stories the room should preferably be on the first floor. The selection of the room, if not a basement, should if possible be governed by considerations of safety against blast and splinters ; that is to say, it is preferable to select a room which is least likely to be susceptible to damage by blast or splinters ; for example, an inside room is better than an outside ; and a room facing a wall is better than one facing a street.

It is inevitable that a certain number of people will be caught in the street and, of course, unfortunately there are many houses the condition of which might make it impossible to prepare a gasproof room. In cases of this kind it will be essential to consider the provision of collective shelters ; that is to say, a certain number of shelters or places to which the public who are unavoidably caught outside in the air raid could go, and in some areas the provision of collective protection for people who are unable to do anything for themselves.

There is a further point that, while a gas-proof room, so long as it remains airtight, will give complete protection, there is always the possibility that the action of high explosive bombs may break down the gas-proofing. In this case there will clearly be every advantage for householders to be in possession of a respirator which would enable them to seek other shelter quickly without coming to very much, if any, harm. The Government are investigating the possibilities of developing a cheap and efficient respirator which would serve this purpose. It would also enable persons in the street to get to a place of safety without becoming severe casualties from gas.

There is still the equally important question of babies and children. I understand that, while it would not be impossible to provide even a tiny baby with a respirator, there are clearly a great many psychological reasons against attempting to do this. Children down to the age of about five can wear a respirator without difficulty ; but below that age there are a great number of undesirable factors which must be taken into account. This problem is also being actively investigated, and I am extremely hopeful that a reasonable and practicable solution will be found. Obviously, the appropriate and best answer is to get young children as far away from potential danger zones as possible ; but, unfortunately, such a course may not be practicable in many cases, and, therefore, steps must be taken to provide the best protection for

small children and babies that can be devised, and particularly one in which mothers would have confidence.

CONCLUSION.

I have attempted to give you what, at the best, can only be a very short conspectus of the problem of air raid precautions in this country. You will, I know, realize not only the magnitude but, also, the novelty of the task, and that the creation and adaptation of services to meet a hypothetical contingency, which everyone hopes may never happen, gives rise to problems of great difficulty and complexity. With the goodwill of all concerned, however, we are very hopeful that it may be possible so to organize the country that the worst effects of air attack shall be minimized; that everything possible shall be done to save life and prevent avoidable casualties; and, last but not least, that arrangements shall be made to enable the country to carry on through what might be a very critical and anxious period.

DISCUSSION.

LIEUTENANT-COLONEL O. W. WHITE: There are two questions that I should like to ask the Lecturer. Having had to look after a certain number of troops in a gassed area, I should like to know what the Lecturer proposes to do with the contaminated clothing in a town, and how he is going to replace the clothing of the casualties. Secondly, has the tonnage in aeroplanes that would be required to produce a gas cloud that would really do damage ever been worked out? I am not an expert, but I suggest that the gas danger is very greatly exaggerated, and that a constant flight of the very largest aeroplanes would be required to gas an area in such a way that serious damage would be done, except in the case of such places as industrial areas and the East End of London.

THE LECTURER: The first point raised is a very important one. Contaminated clothing will have to be dealt with by laundries, and I hope it may be possible to return people's clothing to them—if it is worth having back; but, clearly, we shall have to make arrangements to issue clothes to people in order that they may get out again. That part of the organization is being considered at the present moment.

The second point raised is also a very important one. I am afraid I cannot give figures with regard to the matter, because I have not got them myself, but we have fairly good information as to the probable extent and effect of gas attacks, and I think I can say that there is a tendency to exaggerate the gas danger. One is often told how terrible gas attacks may be; that there will be no protection of any kind available; that respirators cannot be bought under £20; and that they will have to be changed every time a new sort of gas is used. But that is not so. There are people who have made a life study of this question, and the results of their labours are available to the Government, so that it is fairly well known what we have to expect. As I have said before, I believe that fire will be a greater danger than gas, provided, of course, that people do what we ask them to do for their own protection.

THE CHAIRMAN:

Although we hope that the emergency will not arise, it is of the greatest importance that the civil population should be instructed in what they ought to do, for the

purpose of giving them confidence and providing them with the opportunity of reducing the number of casualties which might be caused by hostile action of the kind in question.

I would venture to say at this moment that we are the last country to turn its attention to this important matter. In other countries the question has been under consideration for some considerable time. Whilst I do not think we are to be blamed for not having dealt with it before, I think we should be wrong if we allowed further time to elapse before trying to make the population of this country fully aware of the dangers they may have to meet and the best possible manner of counteracting those dangers.

The protection of the civil population is naturally a great concern of the Defence Departments, but I should like to impress upon you—you will probably have realized it from what Wing-Commander Hodsoll has said—that the control of the civil population lies in civil hands, and it is the civilian organizations that have to make themselves acquainted with all that is required to be done. That is a system which appeals to us in this country, and that is the way in which we should like this particular business to be organized.

Wing-Commander Hodsoll has told us that, while it is quite impossible to ensure safety to the population from direct hits by large bombs, if the precautions which are being considered and which he has put before us are properly carried out—and they can be properly carried out only if their importance is sufficiently impressed upon the population of this country—they will certainly reduce the risk of injury, and will also have the important effect of helping to minimize the disorganization which may be caused. It is essential that we should realize that the co-operation of the individual is required as well as the co-operation of organizations.

I should like to thank Wing-Commander Hodsoll for his very able Lecture and for the very attractive manner in which he has placed his proposals before us. I can assure him that his words have not fallen on barren ground, but that all who have heard his Lecture to-day will consider what he has said and will see that their fellow-countrymen are made aware of the important suggestions he has made.

The customary votes of thanks to the Lecturer and Chairman were carried by acclamation.

FLYING BOATS AND THE PROTECTION OF SHIPPING

By "ZETES"

IT has become an accepted axiom that the existence of Great Britain and the security of our Empire depend upon the inviolability of our trade routes and the control of sea communications. This truth, notwithstanding its triteness, is now, however, being completely disregarded by certain factions in this country whose ideas on Imperial security are restricted to the provision of aircraft for purposes of home defence. The employment of aircraft for the protection of shipping—an interest which is equally if not more important than home defence, has been completely overlooked.[1] It is, therefore, the purpose of this article to discuss the various measures, both by sea and air, required for the protection of shipping, and to show how, in one way at least, aircraft may assist this vital interest.

The trade routes of the Empire are some 80,000 miles in length. Inwards, along these routes, flow the food and raw material essential to the existence of the population and industrial centres of Great Britain; outwards flow, in peace, the manufactured products of the industrial areas and, in war, the personnel, material, and equipment required in the defence of the Empire. A glance at a chart of the trade routes of the world will reveal that there are certain well defined areas where, owing to geographical or other causes, the sea traffic becomes more concentrated than on the ocean highways. These focal areas occur mainly where narrow channels prevent the shipping from deviating from their course; where headlands have to be rounded, and where various trade routes either join or terminate. It is these areas where the shipping is most crowded that particularly require protection.

The Navy's methods for the defence of our trade routes are founded on principles which long usage has rendered almost traditional. Briefly these methods can be summarized as follows. The focal areas, where shipping is most dense, and where an enemy raider would reap a rich

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[1] See also "The Influence of Sea Power on British Strategy," by Vice-Admiral Sir Barry E. Domville, in the JOURNAL for August, 1935.—EDITOR.

harvest, are protected by strong naval forces ; while on the intervening highways where the trade routes diverge and where a raider's chance of success is more remote, defence, when necessary, is localized in the form of escorted convoys ; alternately unescorted ships are routed clear of potential dangers. Over and above these forces is the main naval force which in addition to covering or holding the ring, as it were, for the smaller forces in the focal areas, is seeking to destroy or neutralize the enemy's main naval forces.

The strength of the main covering force need not concern us here ; its ability to perform its task depends to a great extent on its strength in relation to that of the enemy's, and, for the principal naval Powers, that has been arbitrarily fixed by Treaty on a " yard-stick " basis. Here, we are more concerned with the forces stationed in the focal areas, which are mainly of the cruiser or small craft type. The total strength of these forces should obviously be governed by strategical considerations, such as the number and importance of the focal areas to be protected, and the probable scale of enemy attack. Unfortunately, however, the international agreement which fixed the British Empire's cruiser strength was reached on a basis which took more account of " yard-sticks " than of the other more vital strategical interests. The consequence of this will be only too apparent when the forces essential for the defence of our trade routes and communications are considered in more detail.

The forces available at the present time for the protection of the focal areas can be considered under the two headings of :

(*a*) Naval forces, and
(*b*) Those units of the Royal Air Force allocated to co-operate with the Navy.

As regards the naval forces, we have at present a total of about forty cruisers under the age limit specified by Treaty. Of these, some fifteen to twenty will be required for work in connection with the main covering force. This leaves some twenty cruisers available for employment in the focal areas. In 1914, for the same duty but under more favourable strategical conditions, it was considered necessary to employ over fifty vessels of this type. As subsequent events proved, even this number was found to be barely sufficient, but it may, however, be used in this instance to illustrate the extent of the deficiencies which now exist in the surface forces which are available for the protection of our world trade.

The air forces at present available to co-operate with the Navy in the defence of the focal areas are mainly of the flying boat type,

whose manning, training, and administration are the responsibility of the Royal Air Force; they number all told about eight squadrons including those necessary for training purposes. The impossibility of meeting the requirements of trade protection with so small a number is fairly obvious, particularly if some slight consideration is given to the number and extent of the focal areas which have to be defended. Moreover, the number of aircraft actually available is in practice still further reduced because some of them are stationed in areas which are not of primary importance from the point of view of the protection of shipping: an example of this is the flying boat squadron stationed at Basrah. In fact, the strategical disposition of these aircraft is governed in the main by purely Air Force requirements, and it is only in those areas where these requirements coincide with the requirements of the Navy, that the available Air Force units can be expected to co-operate with the Navy. Even so, the value of their co-operation will depend upon whether their personnel is suitably trained. It is important to realize, however, that there are many areas of naval importance which have no corresponding air importance, and consequently in these areas the various defensive measures for the protection of shipping are now suffering from the lack of air forces needed to work with the Navy. On the other hand, it must also be appreciated that the protection of shipping, vital though it may be to the Empire is definitely not an Air Force responsibility, and consequently it can hardly be expected that the Air Council will dispose these aircraft to meet requirements and responsibilities which are solely the concern of the Navy.

But to return to our main problem: the above catalogue of the forces at present available for the protection of our shipping, when compared with the forces which past experience has shown are barely sufficient, will reveal the difficulties which the Navy will have to meet in the fulfilment of its responsibilities. Moreover, there is a new factor which further complicates the problem. Enemy aircraft, by increasing the radius of vision of his surface raiders, will virtually extend the size of the focal areas which it will be necessary to defend. Consequently, forces which previous to the advent of aircraft were found to be sufficient, will now be found to be inadequate.

What, therefore, can be done, not only to meet this new difficulty in the problem of trade defence, but also to bridge the gap between the forces necessary for such defence and the forces actually available. Obviously, one method would be to increase our cruiser strength; but, even if we can release ourselves from Treaty restrictions, there must be a considerable period before new construction can make good

our existing deficiencies. Something more immediate is required, and it is suggested that a partial solution lies in the more extended use of aircraft, particularly those of the seaplane or flying boat type. The characteristics and general capabilities of this type of aircraft are so well known that any detailed technical description of them is unnecessary. We need only concern ourselves with the manner in which they can assist in the protection of shipping; for this an appreciation of the nature and extent of some of the principal duties connected with this operation is essential.

The most important of these duties is that of reconnaissance to enable a considerable portion of the focal area to be kept under observation, and to permit of the prompt and thorough search of any area in which a raider was last reported. Reconnaissance in connection with the latter necessitates the organized search of large areas of the ocean and some idea of the areas involved may be gathered from the following consideration. After a raider has attacked shipping in any given area, a period of time of anything up to six hours may elapse before a search for her, based on the information received, begins. During that time the raider may have travelled at speeds up to say 20 knots in directions which may vary by as much as 180 degrees, and consequently may be anywhere within an area of about 23,000 square miles. A reconnaissance of such an extent by surface ships would be badly handicapped by their limitations in speed and numbers, particularly in view of the tip and run methods, usually adopted by a raider, which make the time factor of first importance. Further, it is very undesirable from a tactical point of view to spread surface craft to act as widely separated and isolated units; not only can they be more effectively employed when concentrated, but such dispersion might render them liable to defeat in detail by a powerful raider. Flying boats, on the other hand, would not suffer to the same extent from the limitations of speed and numbers, neither would they be influenced to the same extent in these particular operations, by the tactical considerations which affect the employment of surface craft. They would, therefore, be eminently suitable for searching large areas of ocean at high speed, and as they can effect such searches in a comparatively short time, they would be particularly valuable in locating enemy raiders. Nevertheless, it must be realized that the striking capabilities of this type of aircraft are of a comparatively low order: they do not make good torpedo and bombing aircraft. Consequently, for the destruction of the raider, reliance would still have to be placed, as heretofore, on the armaments of surface craft; but the operation of the latter will be rendered more effective by the employment of flying boats for recon-

naissance. In short, not only will the use of flying boats extend the vision of the cruisers but, in addition, it will make it possible for the latter to remain concentrated, thereby ensuring their more effective employment in the attack and destruction of the raider.

As already stated above, the air forces now available for co-operation with naval forces are not only very limited in number, but, in addition, certain of them are situated at shore bases the positions of which have been determined by interests which are not paramountly of naval importance. From the Navy's point of view this is most unsatisfactory. For flying boats to pull their full weight in the protection of shipping it is essential that they should be stationed at bases within convenient distance of all important focal areas. Such bases are essential because the flying boat must return to refuel after each flight: it cannot, like a ship, keep the sea for days or weeks at a time. In this connection it must be remembered, too, that not only is there a physical limit to the actual amount of flying that the personnel can do efficiently, but that after each flight the aircraft must be thoroughly inspected and replenished with various other stores beside the fuel expended during the flight. Hitherto, bases for flying boats, with their barrack and hangar accommodation, stores, repair and maintenance facilities, slipways, W/T station, etc., have usually been on shore.[1] The provision of such facilities for all the important focal areas of the world would obviously involve considerable expenditure. Moreover, there is the added complication that there are certain focal areas which are beyond the operational flying range of aircraft based in British territory, but whose importance necessitates the presence of our air forces. Shore bases, moreover, are subject to certain limitations, the chief of which are:

(*a*) Owing to the limited range of action of aircraft, if they are compelled to work from one base, they cannot operate freely over the whole of a large focal area, e.g., the area off the Cape of Good Hope. This means that additional base facilities must be provided.

In this connection it must be remembered that aircraft in general are only mobile within a certain distance of their base, depending on their endurance. In the case of flying boats this can be taken to be between 300 and 400 miles according to the type. For their efficient operation outside this area, additional provision must be made for stores, petrol, oil,

[1] A small example of an exception to this practice was the Dwina Relief Force of 1919, where the seaplanes attached to the Naval Flotilla had a floating base; the personnel, stores, fuel, repair machinery, etc., were all housed in barges which moved up and down river with the naval and military forces.—EDITOR.

maintenance, and repair facilities, and these usually have to be freighted to the desired spot by ship. The plea, often made, that flying boats are self supporting cannot be substantiated.

(*b*) The focal area in question may be unaffected by the particular war in which the Empire happens to be engaged at the moment. In this case there is no profitable return on the money expended in peace time on those particular base facilities.

These shore bases suffer in fact from the limitations inherent in all immobile works. Speaking generally, these limitations usually have to be accepted because there are no reasonable alternatives. As regards the flying boats employed in the protection of shipping, there is, however, a reasonable alternative which, in addition to obviating the serious limitations outlined above, is also more economical financially. The alternative suggested is to employ ships as bases for these aircraft. These depot ships could be equipped to provide all the facilities of a base ; they could accommodate all the personnel, workshops, stores, etc., required in the operation and maintenance of aircraft, and the extremely powerful wireless installation with which it would be possible to equip them would be invaluable for the dissemination of the information obtained by the aircraft. Most important of all, they would enable aircraft to operate in those focal areas which are at present out of operative flying reach of British territory.

By means of a depot ship, moreover, the flying boats' area of reconnaissance would be further increased as they would not be hampered by the necessity of returning to a base which, when located ashore as at present, remains stationary throughout their patrol ; for during their patrol in a given direction of, say, eight hours, their floating base could, if desired, also move in the same direction at, say, 20 knots, thereby virtually increasing the range of the aircraft by approximately 120 miles. In effect, a depot ship, with her ability to operate in any part of the world at short notice and with the minimum of delay, would ensure that her flying boats obtained a mobility which would then be governed, not by the limited radius of action of the aircraft themselves, but by the much greater endurance of their floating and mobile base .

There is one further aspect of such depot ships which calls for comment ; that is their status as defined by international Treaty. The category under which they would come is that of " naval surface vessels not specifically built as fighting ships which are employed on fleet duties," and, provided they comply with certain stipulations of which the undermentioned need only be stated, they are not subject to

any tonnage limitation. These stipulations would be that the ships were :

(i) Not designed for a speed greater than 20 knots.

(ii) Not armed with any gun above 6.1-inch or more than four guns above 3-inch.

(iii) Not fitted to receive aircraft on board from the air.

(iv) Not equipped with more than one aircraft-launching apparatus on the centre line, or two - one on each broadside.

(v) If fitted with any means of launching aircraft into the air, not designed or adapted to operate at sea more than three aircraft.

The last two stipulations are of particular interest. Whilst the use, in the depot ship, of a catapult or some kindred means of launching aircraft in the air would not be an absolute necessity for her employment in the manner visualized above, there is no doubt that some such device would prove of considerable value in enabling the flying boats to take off in weather conditions which would otherwise prevent their operating. It might be argued that the use of the catapult whilst the ship is at sea is limited by the last stipulation, although the phrase " to operate at sea " is open to varying degrees of interpretation ; but it is difficult to visualize any technical considerations which, while permitting three aircraft to be " operated," would prohibit the operation of a larger number. However, it appears perfectly legal for the depot ship to be equipped with a maximum of two catapults, one each side, and to be able to fly off any number of aircraft, provided that they are recovered when the ship is in harbour. This faculty must obviously greatly enhance the operational value of ship-based aircraft.

The value of these proposals can best be illustrated by recalling the historical example of the " Emden " in the late war. The search for this raider alone diverted over fifty-four of our men-of-war, many of which were urgently required elsewhere. Had the Navy been able to use flying boats in the way now suggested, it is easy to imagine how the location and destruction of that raider would have been expedited. In the next war, not only will there be more ship raiders, but they will be aided in their depredations by aircraft. The Navy must, therefore, possess suitable aircraft with bases as mobile and self-contained as its ships if it is to be able to counter this menace.

THE ATTACKING POWER OF INFANTRY

By Captain G. H. Clifton, M.C., New Zealand Staff Corps.

ALLIED to wire and aided by the spade, machine guns dominated the battlefields of 1914–18, and the combination produced the most formidable defence system in the history of land warfare. Even enormous concentrations of artillery failed to overwhelm it entirely. Tanks proved effective against it under favourable conditions. But artillery and tanks assisted the infantry to close in and use its own weapons, and often the latter actually eliminated the hostile guns.

Nowadays, however, owing to the inevitable reduction in all ranks of those who have had war experience, and to the constant production in schemes of hold-ups by imaginary machine guns, we are a little inclined to exaggerate the bogy and to feel it can only be dealt with by shells or tanks. It is proposed, therefore, to describe a typical offensive operation carried out by the New Zealand Division in France, with particular reference to the action against machine guns. This formation has been chosen because it participated in several periods of semi-mobile warfare, and because it was a Territorial Division of good quality, which had little previous experience of soldiering, but which quickly adapted itself and its tactics to meet the varying conditions.

The reintroduction of the mortar and the advent of the new light machine gun add interest to the present situation ; we have, therefore, considered the influence of these weapons on the modified brigade organization, which is undergoing trials at the moment.

Much of the efficiency of this Division was due to the British Army personnel on loan prior to the War ; this helped to organize and train, and in some cases, led it. When the Lewis gun and Stokes mortar became available, every opportunity was taken of employing them in co-operation with the " normal " infantry weapons. Both the mortars and the Vickers guns were organized as divisional units, though each sub-unit worked with a particular brigade whenever circumstances permitted. In view of the experimental organization now being tried out, it is interesting to see how well this system worked, both as regards efficiency in training and co-operation in battle.

Patrolling was a fetish of the Division, but the methods varied, some units relying on specialists—picked men who led every battalion enterprise—while others, notably the N.Z. Rifle Brigade, dealt with it as a routine matter, undertaken by platoons or sections in succession. Both methods worked well, but the former gave better results when applied to fighting patrols, which were used extensively to lead night advances, to carry out minor raids, and to maintain local command of "no-man's-land." Particular attention was paid to the latter action, mainly as a matter of prestige and morale, and partly as the most effective method of protecting working and reconnaissance parties. The importance of leadership and the necessity for quick decisions and full use of ground had always been recognized. Direction finding with the compass was extensively practised, some units, when at rest, insisting on all junior officers and N.C.Os carrying out compass traverses of their areas and practising night movement over unknown country.

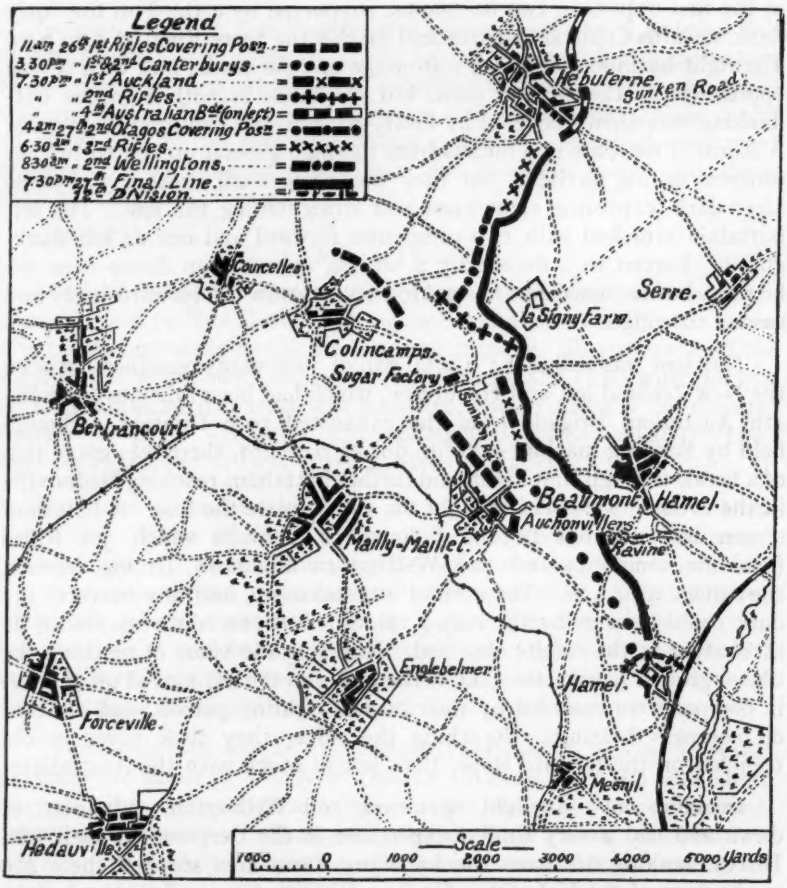
A Typical Offensive Operation.

On the 25th March, the New Zealanders, in reserve, having been hurried down from Flanders, were detrained West of Amiens. The divisional artillery moved by road and did not join up until the night of the 27th–28th, while the light mortar batteries, ordered to move without ammunition, could not obtain local supplies; fire support in the early stages was, therefore, limited to the machine-gun companies. Owing to the railway dislocation and lack of transport, most units marched twenty miles over dusty roads, congested with stragglers, refugees, and all the flotsam and jetsam of retreat, before going into action; the infantry were in light fighting order, having dumped packs and blankets, and carried 220 rounds of S.A.A. on the man.

At 10 p.m., General Russell received orders to fill the widening gap between V Corps about Hamel and IV Corps, thought to be at Puisieux. The situation was obscure, the British troops had suffered heavily in the withdrawal, and immediate action was essential. A rough plan was settled by which the right flank should be secured first, and touch gained with V Corps at Hamel, the line being then extended towards Puisieux as additional troops came up. It was an encounter battle, except that contact took place in the maze of old trenches and wire of the 1916 Somme area. (*See Sketch.*)

At 3 a.m. 1st Rifles reached Hedauville, and three hours later advanced to secure the Auchonvillers Ridge as a covering position. East of Mailly-Maillet, the leading company met and drove in unorganized opposition, reaching the objective. On the right, patrols made contact with V Corps units, but the situation on the left was critical, for strong German forces, advancing from Serre, had occupied the sunken

Hebuterne Road and also reached the high ground at the sugar factory 1000 yards North of Auchonvillers, whence their thrust with two battalions towards Colincamps increasingly enfiladed the New Zealanders. Though the latter did not know the source of relief at the time, this pressure was abruptly eased by the first appearance in battle



of twelve " whippet " tanks. " Debouching from the northern end of the village, they produced an instantaneous effect. Some 300 of the enemy about to enter it in close formation from the East, fled in panic. A number of others, finding their retreat cut off, surrendered to some infantry of the 51st Division which had come up." [1]

[1] *Military Operations, France and Belgium*, 1918, Vol. I, p. 526.

With this timely if indirect assistance, 1st Rifles held on until 2 p.m., when the two Canterbury battalions went through to secure the high ground overlooking the Beaumont Hamel ravines and the Ancre Valley. Before Serre could be reached, the high ground at the sugar factory and at La Signy Farm beyond, had to be taken. With this as the first objective, two battalions, supported by a third on the outer flank towards Colincamps, attacked astride the Serre Road at 5.30 p.m. The right battalion, covering a frontage of 1500 yards, met with severe opposition at the sunken road, but overcame it with vigorous out-flanking movements covered by Lewis-gun fire, and captured three guns. A storm of machine-gun bullets from the high ground prevented further progress during daylight, but they worked forward another 300 yards after dark, capturing eight guns and straightening the line. The left battalion attacked with two companies forward and one as left flank-guard. Forced to a detour by a blazing ammunition dump near the factory, but screened by its smoke, they overran the forward posts and gained the ridge.

The door was still ajar ; a vital gap of 3000 yards remained between the New Zealand left and Hebuterne, which had been taken over by the 4th Australian Brigade from the exhausted 19th Division. Though held by flanking machine-gun fire during daylight, there was grave risk of a break-through that night, and further battalions reaching Hedauville in the evening were sent straight on, to complete the line. A battalion screen was put out beyond Colincamps, through which 3rd Rifles (less one company) and 2nd Wellingtons advanced, having reached the village at 4 a.m. The ground was unknown, and any move in the dark could only be by the map ; the different procedure adopted is as interesting as the results obtained. Realizing the value of reaching the higher ground unseen, the C.O. of the Rifles on the left moved off at once, in company columns led by their normal fighting patrols, and directed on compass bearings. Reaching the ridge, they took cover in old trenches on the forward slope, their left in touch with the Australians.

Deciding on a daylight operation, 2nd Wellington's advanced at dawn and had a very similar experience to the Germans on their left. Heavy flanking fire from the La Signy Farm area stopped them 400 yards short of the Hebuterne Road and inflicted heavy losses. A night advance here might also have taken the ridge and saved the large-scale attacks required finally to secure this " key " position, which gave observation and enfilade fire over much of our line. A deliberate attack was finally launched at 2 p.m. on the 30th, preceded by a heavy barrage. In the centre, progress was stopped by a strong point, but under cover of rifle grenades, a platoon rushed it with the bayonet. Brought well

forward to get direct observation, a Stokes mortar silenced, with five rounds, one redoubt which held up all attempts to close in. Fighting patrols maintained aggressive action by day and by night, resulting in several enemy forward posts being " pinched out " and our defence deepened. Early in April the situation was stable.

No-man's-land in this Somme area was a maze of old trenches full of rank growth—admirable ground for raids. Units vied with each other in carrying these out, at all hours, resulting in prisoners and occasional machine guns being brought in three or four times weekly. The moral effect on new drafts, who could often watch the operation, was most beneficial. The financial aspect was also a serious factor, battalions backing their own " teams " heavily.

General Lessons

As with most formations, nearly seventy-five per cent. of the decorations received by New Zealanders for such operations were given to men who tackled successfully the machine-gun menace. Having escaped the burst of fire which stops his comrades, to go on and close with the gun calls for a man with courage and initiative, and to knock it out requires efficient use of his weapons. The modern infantryman must therefore have such qualities, if he is to be capable of attacking.

The value of teamwork stands out as the principal lesson of these operations. When all forms of fire power were properly co-ordinated, success followed ; when artillery or tank assistance could not be provided or for various reasons was inadequate, the combined efforts of determined infantry, mortars, and machine guns still made progress on suitable ground. A well-balanced plan in which every means of producing fire is fully utilized, will result in a successful attack ; but infantry can get on without waiting, in all cases, for a barrage or a bevy of tanks.

" The ubiquitous mortar " is constantly referred to, and innumerable instances are given in *The New Zealand Division* when its immediate support, with rapid and accurate bursts of fire, cleared up local situations. Battalions normally attacked with one or more Stokes detachments following the leading companies. Sometimes the O.C. company issued orders for them to come into action ; more often the detachment commander moved independently to an area from which he could get observation and engaged targets on his own responsibility. Ammunition supply naturally proved a difficulty, particularly during mobile fighting, but the Dominion troops were always willing to carry forward anything of real assistance, and mortar bombs were a normal load for support companies.

Quick appreciation of the ground and ability to make full use of available cover, are necessary factors in carrying out attacks by infiltration methods. It is noticeable that not one in ten of the men who became famous for their patrol and raid work had previous stalking experience; if given sufficient practice, anyone of average intelligence can be trained to use ground, even at night.

Numerous attacks commenced before dawn, to break the "crust" of the defences and close with the enemy under cover of darkness. Many operations of this nature derived great assistance from mist. The opening phase of the German offensive on 21st March, 1918, will always be the outstanding example, for we can say definitely that the initial penetration was directly proportional to the time for which the fog lay.

Vigorous exploitation on the night following an attack, and undertaken principally by fighting patrols, often added important gains and helped consolidation.

Smoke was used extensively both in the barrages and as flanking screens, but mainly by supporting artillery; mortars concentrated chiefly on fire for effect, seldom using smoke bombs.

Darkness, fog, and smoke, as cover, have obvious disadvantages in slowing up the rate of advance and in possible loss of direction and control. But these can be overcome by thorough training, particularly in cross-country movement by night. In commenting on the attack of 21st March, 1918, *The Official History* says:—"The German infantry does not appear to have been hampered by the fog, although it had to advance over unknown ground with the ever-present fear of walking into traps. Enemy accounts show that, having good maps, the various parties had little trouble in moving by compass, while the fog lasted, and very few of them went astray. In fact the fog favoured the enemy's bold infiltration tactics. . . ." [1]

It is safe to say that fighting patrols entered into some phase of every minor operation undertaken by the New Zealanders. The variation in method has been mentioned, but the moral and tactical results were out of all proportion to the numbers employed, irrespective of whether the work was done by specialists or as routine patrolling. During peace training, all sections can be practised in this vital and integral part of night and other offensive operations.

Little mention has been made of our machine guns, whose direct support of attacks was confined to barrage fire. But forward sections, attached to or closely following leading battalions, played a most important part in stopping local counter-attacks and, as we have seen

[1] *Military Operations, France and Belgium*, 1918, p. 256.

in March, 1918, provided invaluable assistance to tired troops on precariously held objectives.

The Offensive Power of Our Present Organization.

Having studied the past and extracted some lessons from that experience, let us consider, briefly, our position to-day.

The reintroduction of the mortar puts us back to 1918, giving that variety of fire power to infantry which enables them to get on, while mechanized carriage eases the problem of moving forward rapidly not only the mortar but also its ammunition.

Two more proposed changes influence the attacking ability of our infantry. The experimental brigade of three rifle battalions, with the supporting weapons grouped in a separate unit, is a compromise between the simple War organization, when both mortars and machine guns were in divisional units, and the complicated post-War battalion, with its variety of weapons. In a national war, the divisional system has many advantages, notably simplicity of training and of supplying reinforcements, while, as our illustrations show, co-operation in battle is not sacrificed. Yet the new brigade organization should give greater flexibility in control, both tactically and for administration, and be able to carry out the combined training which, in peace, makes the infantryman familiar with all the weapons that concern him. Within the brigade, as in the battalion, personal contact between machine gunners, mortar teams and riflemen is feasible ; in peace, a divisional specialist organization could not ensure this valuable phase of training.

Granted then that there is much to be said in favour of a brigade, in which three rifle battalions can concentrate on their proper role, having the added staying power and tactical elasticity due to containing four homogeneous companies ; nevertheless the fourth battalion, containing immediate support weapons, does not appear quite happy in its present form. Though anti-tank and machine guns are necessary defensive weapons which can ensure that " what we have we hold," yet they can do little in their present form to help an attack forward. This brings us therefore to a change in equipment which bears very definitely on the problem.

The new light machine gun, among those many virtues which will commend it to the Lewis and Hotchkiss gunners, and which seriously threaten the supremacy of the Vickers, is capable of being fired on a fixed line, either from the tripod or from a " butt-stand." This was not possible with our wartime light automatics. Is it therefore reasonable to suggest that the experimental " rifle " battalion, containing fifty-two of these light guns, which are capable of firing as long as ammunition is

available, either by direct shooting or on fixed lines, can produce all the defensive fire normally required from infantry guns? If this is accepted, we can go further and say that the main role of the Vickers in providing "the framework of the defence" is considerably modified, if not replaced. Although this contention may be somewhat sweeping and not yet proved, there is no doubt that the Vickers gun has a direct offensive value, only when installed in a tank; the machine gunners handed over this role when they helped to form The Royal Tank Corps.

Fire which is holding up forward movement can, as we have seen, be overcome by various combinations of weapons and ground. The problem was difficult enough in 1914–18, but it has not been made easier by the added mobility and efficiency of the new light guns. In discussing this matter, particularly in the case of enfilade fire from outside the frontage of the attacking unit, Colonel Hudson, in *The Army Quarterly* of January last, strongly recommends the light tank as the best, though not the only answer. Armed with co-axially anti-tank and anti-personnel guns, and having sufficient protection against fire to maintain its mobility on the battlefield, the light tank is a good all-round supporting weapon both in attack and in defence. Remembering the existing vehicle, two arguments immediately come to mind against tying up such a valuable and expensive asset as part of the infantry brigade. Firstly, the army tank is designed for such duty within the division, and any permanent distribution of this type of weapon to lower formations is inefficient. Secondly, we are handing over to non-technical units, a specialized complicated weapon, which has been developed for definite tasks outside the scope of normal infantry tactics. Let us examine these objections more closely. There is a school of thought which feels that the Army tank battalion, though excellent in theory, will not materialize in practice; its main, and best, contribution to the future may be the evolution of a more simple and cheaper medium tank. In war there will be insistent calls for A.F.Vs to work in close co-operation with infantry, and the formation of this unit is a praiseworthy attempt to anticipate the demand and to prevent other armoured formations being sidetracked from their proper tasks.

Admitting the difficulty of carrying out the secondary task of crushing hostile wire, the first weapon for this role of intimate support is the armoured machine-gun carrier, which can carry it out, if not equally well, at least with reasonable efficiency. It is immaterial whether the carrier is a simplified "light tank," which combines both anti-tank and anti-personnel armament or a cheaper vehicle equipped only with the machine gun, though the need for armour must be stressed. If the infantry can get on, their light guns will be in action; against a local

check, the "infighter" type of carrier can provide the quickest assistance, particularly the co-operation with mortar fire.

Ammunition, anti-tank, and mortar vehicles follow the attack, and may be unprotected against S.A. fire, but if the supporting machine gun is to be of real assistance, it must be close up to or ahead of the leading infantry. Obviously the "I" tank is the ideal weapon for this task; but it is expensive, and if five or six armoured carriers can be manufactured for the same money, surely they should have priority of provision.

As regards the second argument, we feel that the inclusion of armoured "carriers" in the support battalion can only increase the good fellowship which already exists between the R.T.C. and the infantry. Presumably the former would assist with specialist training and technical advice, and would benefit in battle, because infantry attached to mobile formations for independent action would be thoroughly acquainted with their own tanks and therefore capable of better co-operation.

Again, the objection to organizing mortar and other specialists on a divisional basis in peace, applies equally to the Army tank battalion; it will have few opportunities to work with the units which it would support in war. But the armoured carrier can be an integral and very active part of the infantry brigade, taking its proper place in every battalion, or even company, exercise.

An Alternative Organization.

Let us consider very briefly an alternative organization for the support unit. Starting with one company of armoured carriers, there is much to be said in favour of concentrating the mortars here as the second company. This arrangement makes the specialist training of both weapons easier; they will be equally concerned with supporting the rifle battalions and sharing their tactical training. Possibly the personal contact may be broken between the mortar detachment N.C.O. and the commanders he will support, but this desirable touch will inevitably be affected by casualties and is not the best foundation for battle co-operation. Four sections in the armoured company would, we suggest, allow one in support of each forward rifle battalion and leave a valuable reserve of mobile fire power, under the hand of the brigadier, for pushing through a located gap or for exploitation generally.

Naturally, the third company of the support battalion would contain the anti-tank guns; it could conveniently include a mining section, for the mine is a normal part of the defence against A.F.Vs and should be regarded as a simple obstacle to be handled by infantry. We suggest

that the mining section should include light machine guns, on motor cycles, to cover minefields and road blocks. This would release the armoured company and A.T. guns for wider protective duties.

Conclusion.

Well-trained infantry, given suitable conditions, can attack successfully with their own weapons. The machine gun may dominate the battlefield, but it can cope with neither the few determined men who stalk it nor properly handled mortars.

When the enemy is holding an organized position, well-dug and wired, as at Messines, infantry must rely on the fullest support obtainable from other arms to " break the crust " ; and even then it is largely the co-ordinated use of their own weapons which maintains the momentum of the attack. If we hold fast to the belief that infantry is the predominant arm at night—that training in night operations, and particularly in patrolling, is the foundation of infantry tactics—we cannot be far wrong.

Attacking power has been increased by putting the mortar back in its proper role. But a fresh turn to the problem arises from the efficiency of the light machine gun, which adds to the fire power of both attack and defence. By multiplying the potential centres of stopping power, it adds fresh difficulties to the already heavy burden of the attacker. A number of cheap simple armoured carriers, forming an armoured company, included in the support battalion, is, we feel, the most reasonable answer. More than that, it is a solution which, though possible additional to army tank battalions, should have priority of provision. When every attacking infantry unit has the support of armoured machine guns and of mortars from within its own brigade, can we doubt that it will tackle the task with more confidence, and gain a speedier success ?

Co-operation of all arms is the keystone of the tactical arch—" All for one and one for all," the Service motto ; but it is the co-ordinated use of infantry weapons which still gains the final decision.

A NEW DEAL IN TACTICS

By Brigadier M. N. MacLeod, D.S.O., M.C.

PROFESSIONAL soldiers are often accused of preparing always for the last war and never for the next. The gibe, though unkind, is not entirely unjust and is easily explained. Tactical doctrines are usually evolved in peace, after much thought and discussion, by men who are not in the habit of changing their minds once these are made up. Such men inevitably acquire a bias in favour of the doctrines they have helped to shape and, when they encounter new facts, are apt to interpret these in terms of their old beliefs.

No wonder then if occasionally they distort facts in order to fit theories rather than amend theories in order to square with the facts; or if war experience, thus perverted, merely confirms them in the old ways, instead of guiding them along new paths. It is not, however, only in the peace preparation for future wars that the effects of this bias are apparent. Indeed it is, perhaps, most in evidence at the outbreak of hostilities, although it often escapes notice because those concerned are unaware of its existence. It is therefore of interest, and also of importance, to observe the effect of this bias on the events of the Great War and its influence on their interpretation.

In 1914 the commanders and staffs of all the armies went to war in the firm belief that warfare would be mobile and that battles would consist of a series of manœuvres culminating in an assault. The idea has been described by one of Marshal Joffre's staff officers in the following words :—" Without regard to the ground or the enemy, the last word in the art of war was to dispose the forces in a general and preliminary deployment in such a manner that they could go into action simultaneously and without delay. . . . As for the troops . . . only one thing was asked of them—to rush on and batter down without bothering about the effects of fire . . . waste of time, therefore, to take the precaution of digging trenches which merely delay and impede the assault, the only true method of fighting; waste of time above all to wait for the artillery to prepare the attack. The battle was reduced to a sort of immense tidal wave which would submerge everything." [1]

[1] " Joffre et la Marne," by Commandant Muller.

British doctrine, based on more recent experience of warfare in South Africa with real bullets, disagreed with the above, but only to the extent of insisting that charges could not be delivered until fire superiority had been obtained by the attackers. It hoped to obtain this fire-superiority by a high standard of musketry combined with open formations and skilful use of natural cover. Continental soldiers, however, refused to endorse these British ideas, maintaining that fire with no targets to aim at was not likely to be effective, and that open formations and the use of cover merely delayed the attack and made it difficult to control. It was better, they insisted, to put in as many men as might be necessary and train them to hurry forward regardless of losses. They agreed that many would fall, but they thought that, if enough started, sufficient numbers would arrive to emerge victorious from the bayonet contest which was all that mattered. " If you are not prepared for losses," they said, " do not go to war."

Events soon proved that both criticisms were well justified. As the British had foretold, no numbers, nor any amount of hurry, sufficed, even to begin, much less to win, a bayonet contest. On the other hand, as the continental soldiers had predicted, and as Field Service Regulations now admit, fire superiority cannot be obtained with infantry weapons alone, because even crack shots require something to aim at and time to take aim. By the beginning of 1915 it was obvious that the pre-War tactical theories had failed, but the lesson drawn from failure was distorted by pre-War ideas of what warfare should be like. A distinguished Artillery officer (Major-General A. F. Brooke) has recorded that " In our winter experience of trench warfare, our attention had gradually been riveted on the hostile defence and wire. . . . As a result the wire entanglements and trench systems were looked on as the real obstacles to our advance, and not the fire power behind them. . . . We were gradually led into considering that the destruction of the obstacle should be our primary object " [1]; he might have added, " and we confidently believed that if the obstacles could be passed, the stalemate would come to an end, and the mobile warfare—for which all ranks had been trained—would reappear." Accordingly, for the next offensive, a new plan was tried and the artillery was called in to take a share in the attack.

The artillery was, of course, no stranger to warfare, but according to General Brooke " it had not yet been clearly recognized as a necessity in modern battle." [2] It was not now asked, however, to " destroy the

[1] *R.A. Journal*, Vol. LIII, p. 84.
[2] *R.A. Journal*, Vol. LI, p. 261.

enemy," that task still being reserved for the infantry, but only to destroy the hostile defensive obstacles, particularly wire, which were thought to be the principal causes of previous failures.

This new plan was tried for the first time at Neuve Chappelle. A number of extra guns were brought up to support the attack, and ten days were spent in registering them on the German trenches. These were then bombarded for half an hour—the most that the available shell supply would allow—after which the bombardment was lifted and the infantry went in with the bayonet. Along most of the front (about 2,000 yards) they found the German trench demolished, and the survivors of its garrison in no condition to fight. Success was quick and complete. In one place only, where the bombardment had gone astray and some 400 yards of trench had escaped damage, was there any resistance; but here a very different tale was told, and the attackers were mown down, almost to a man, the moment they emerged from their trenches. After a long delay a new bombardment of this bit of trench was organized, and, this proving very accurate, the obstructive Germans came out and surrendered even before the infantry assault was renewed. The trench line had now been broken and the way was clear to exploit the victory and to revert to "mobile" methods. Accordingly, the bulk of the artillery, having done its job, was left behind, and the infantry pushed on alone. As is well known, they did not get far; the attempt at exploiting the victory yielded nothing more than a heavy casualty list. It is quite clear now, looking back on the event, that successes were gained by the infantry at Neuve Chapelle only where the artillery had already won the battle, and that they were confined to those parts of the battle-field where the artillery targets had been suitable and its fire accurate. Unfortunately, the old ideas had roots too deep to allow an unbiassed view of the facts. The initial check was put down to failure to destroy the German trench, and the subsequent reverses to faulty leading. The psychological effects of surprise and of accuracy in artillery fire were either ignored or greatly under-estimated.

This same interpretation determined the character of the next five British attacks—Loos, the Somme, Arras, Messines, and the third battle of Ypres. More and yet more artillery was assembled to destroy the trenches and wire, and each offensive was prefaced by a deliberate bombardment of the hostile positions, maintained for several days and requiring weeks, nay months, of preparation. All chance of surprise was deliberately sacrificed in order to secure the complete destruction of every hostile trench and obstacle. The results were not encouraging. The British Official History of the battles of Loos and the Somme makes it moderately clear that, as at Neuve Chapelle, success was again

directly proportionate to the quality of the artillery bombardment, and that all attempts to exploit breaches in the trench line were disastrous and costly failures. So much, indeed, was this the case that after the attack on 1st July, 1916, the plan had to be modified. The idea of exploiting was temporarily abandoned, and the "limited" offensive based on the policy of wearing down the enemy became the rule.

General Fuller sarcastically describes this modification in the following words: "In 1915 a new tactical theory was propounded. It was 'artillery conquers; infantry occupies.' The following year we see infantry playing almost a passive role in the great artillery battles. They follow barrages. They do not fight. If the barrage succeeds, they occupy the enemy's position; if it fails, they fail, and in both cases their casualties are colossal."[1] What General Fuller omits to say, however, is that the casualties were now being caused quite as much by artillery as by rifle and machine-gun fire. The battles of the Somme, Arras, and Messines showed that no trench system, however elaborate, could be defended against massed artillery by rifles and machine guns alone, though these weapons still sufficed to hold up any attempt at exploiting a break through. More and more, therefore, the defence found itself compelled to rely upon artillery, and the artillery duel envisaged by pre-War theory now began. By this time, however, the reputation of the machine gun had been well established, and inventors had been busy with antidotes. Their efforts came to fruition on 15th September, 1916, and with the appearance of the tanks another "solution" for the attack problem was offered.

The events of the next year must be passed over quickly. It will be admitted, by none more readily than the inventors, that at first, at any rate, the new solution showed no advance on any of its predecessors. So much so that, after the battle of the Somme, Haig is said to have asked for work on the tanks to be stopped altogether. However, the inventors were not to be put off; more tanks continued to arrive at the front, and no less than two hundred took part in the third battle of Ypres without affecting to any extent the course of that operation or doing more than confirm the first impressions of the Commander-in-Chief. By October, 1917, the third "solution" had apparently failed also, and Ypres would quite probably have seen the end of the tank idea but for the fact that unexpected events now happened which induced the C.-in-C. to give it one more trial.

It is worth recalling the circumstances. The French army had been badly shaken by the failure of the Nivelle offensive and was on the verge of mutiny. Russia had already collapsed and the battle of

[1] "The Dragon's Teeth," by Colonel J. F. C. Fuller, p. 265.

Riga (September, 1917) had shown, apparently, that her army no longer counted as a military factor. The great British summer offensive, from which so much had been hoped, had fizzled out in the mud of Flanders with staggering losses. Then, to crown all, the Italian front suddenly gave way. Something had to be done, and that quickly. The obvious thing was to attack the enemy again and at once, but with an exhausted army how was that possible? If the grand offensive, prepared in the greatest detail and pressed to the limits of human endurance, had failed to prevent the German ripostes at Riga and Caporetto, what more could be expected? For this apparently insoluble problem the tanks offered a solution. To account for their past failures, their spokesmen had continued to maintain that they had never yet been given a proper chance. They pointed to a memorandum written by Colonel Swinton so far back as February, 1916, in which the proper tactics of tanks had been laid down in the following words :— " Since the chance of success by tanks lies almost entirely in its novelty and the element of surprise, it is obvious that no repetition of it will have the same opportunity as the first unexpected effort. It follows, therefore, that these machines should not be used in driblets, but that the fact of their existence should be kept secret as long as possible, until the whole are ready to be launched together with the infantry assault in one great combined operation." They averred, quite rightly, that these recommendations had been consistently ignored. They had, of course, to admit that the novelty had long since passed away, but they claimed that there was now an opportunity to regain the " element of surprise " by launching all the available tanks—some 400 in number—suddenly at the enemy in a new place, in " one great combined operation."

Haig's views are not yet on record, though his despatches are not without indications of the trend of his thoughts. It may be conjectured that he reasoned somewhat as follows :—" I have 400 new tanks, for which, since the winter is coming on and my great offensive has failed, I have no immediate use. The tank experts say that they will do better if I use them in the same way as the French and Germans used their infantry at the start of the War, and hurl them suddenly *en masse* at the enemy. I have tried other methods without success. If I let them try their own plan and they fail, it will be because, as I fear, they are no good; but in that case their loss will leave me little worse off than I am now. On the other hand, if they succeed, they will not only shake up the enemy, but will show me how to use them in future. The attack they propose is a gamble, but the situation is critical and risks must be taken. I stand to gain so much more than I stand to lose,

that I will let them try." Accordingly, the C.-in-C., greatly daring, decided on the throw, and cast a winning number.

The tank tactics were not, however, the only novelty in this fourth solution of the problem. Although the tanks played the lead in the new scene, the artillery were not left off the stage. On the contrary they were given a new part, and, instead of being restricted almost entirely to the overture, they were now entrusted with the opening chorus. Large artillery reinforcements were hurriedly assembled in the sector selected, but they were not allowed to register, and their fire—completely ignoring trenches and wire, even though these were known to be of exceptional strength—was directed principally at the enemy's artillery. The result of the gamble surpassed all expectations. The attack went clean through the German line at its most strongly fortified point, and with insignificant casualties. Now, at last, it seemed that, with tanks and cavalry standing by and no German reserves anywhere near,[1] the opportunity to restore the lost mobility of warfare had arrived. " With no wire and no prepared defences to hamper them," runs Haig's despatch,[2] " it was reasonable to hope that masses of cavalry would find it possible to pass through, whose task would be thoroughly to disorganize the enemy's systems of command and inter-communication in the whole area between the Canal de l'Escaut, the River Sensée, and the Canal du Nord, as well as to the East and North-East of Cambrai. My intentions as regards subsequent exploitation were to push Westward and North-Westward, taking the Hindenburg Line in reverse, from Moeuvres to the River Scarpe and capturing all the enemy's defences and probably most of his garrisons lying West of the line from Cambrai Northwards to the Sensée."

With over a hundred tanks and three divisions of cavalry in hand on the morning of 21st November, with the Germans driven in panic from the strongest position ever constructed, and last, but not least, in a country specially selected for its suitability for tank action, it looked, in comparison with what had been accomplished on the previous day, almost easy. " The prospects," wrote Earl Haig, " were in my opinion good enough to justify the attempt to execute the plan." Nevertheless the plan failed, just as badly as any of its predecessors ; and a German counter-attack very soon restored the equilibrium on the Western front.

Notwithstanding its disappointing finish, the Battle of Cambrai had far-reaching results. The solution for the main problem had apparently been found. If the tanks had not yet discovered how to

[1] Earl Haig's despatches mention that no German reserves were within 48 hours of the scene.

[2] Despatches, p. 171.

exploit a victory, they seemed to have shown how to break through a trench line. According to General Fuller, Mr. Lloyd George, and other writers, this battle ushered in a new era in warfare, "the era of the mechanical engineer." So confident are these modern Napoleons of the correctness of their diagnosis that none of them have thought it necessary to try and account for the continued inability, even with the assistance of the apparently irresistible tanks, to exploit so complete a victory, or to notice that the Germans, without any help from these vehicles, had already achieved, by similar artillery tactics, victories even more striking. For, apart from the tanks, the tactics employed by the British at Cambrai were almost an exact copy of those used by the Germans at Riga two months previously. The German success at Riga had been remarkable enough to attract attention on the Western Front but, as the Germans had used no tanks, it did not occur to anyone that there might be a connection between the two battles. After Riga, the Germans turned upon Italy, and at Caporetto tried the new tactics again with the same astonishing result. Still no one suspected that a new and very effective solution of the problem of attack had been discovered. The British and French Generals merely concluded that the Italian morale, like that of the Russians, must have been worse than had been supposed. The British turn came next. This time, any success obtained by the Germans could not be ascribed either to tanks or to surprise, for the German tanks were a mockery and the British had been expecting the attack for days exactly where and when it arrived. They were surprised only by its strength. They had, of course, had no experience of the new artillery methods and, suspecting nothing, were quite confident of their ability to hold the line.[1] All the same, the line was broken and it can hardly be coincidence that it was broken by the same von Hutier whose new tactics had enabled the Germans to break the Russian and Italian fronts. Still no one suspected a new fighting technique. The French chiefs merely concluded that the British must be even less competent than they had feared; until in May, 1918, the Germans, using the new methods once more, burst clean through their own position on the Chemin des Dames.

There could now be no doubt that a solution for the problem had been found, but it could hardly have anything to do with tanks; nor could either surprise, loss of morale, or incompetence, account for the German victories. Moreover, although the Germans with the aid of these new artillery methods seemed to be able to break the Allied line almost at will, and to exploit their victories with a skill never equalled

[1] The British Official History specially mentions that it had not been considered necessary to practise the troops in the tactics of retreat during the winter of 1917.

by the Allies even with the assistance of their tanks, they could not restore entirely the lost mobility to warfare. After each victory, mobility continued only for so long as there were gaps in the allied line. With the gaps closed, mobility ceased and the deadlock was re-established, leaving the Germans in each case in a very dangerous salient.

In July, 1918, the tide turned. The Germans had shot their bolt and the initiative passed once more to the Allies. On 8th August, the British Army repeated Cambrai on a larger scale, and with very similar results, i.e., a spectacular success on the first day followed by a similar inability to exploit the success afterwards. Notwithstanding the efforts of the cavalry supported by the new whippet tanks, capable of a speed of more than 10 miles an hour, the seven-mile advance of the first day came to a full-stop four days later less than five miles further on. This time, however, the C.-in-C., profiting by past experience, gave up the idea of " exploiting " the victory. He decided to break off the battle altogether and to renew it as soon as possible in another sector. The new attack, delivered on 21st August, was almost as successful as its predecessor. So successful was it, indeed, that from this time onwards no further attempts were made to " exploit " victories, or to pass through cavalry in order to roll up the hostile line. Instead, at the first check, each offensive was shifted lock, stock, and barrel, to a new sector. The " mobile " warfare for which the pre-War army had been trained, and for which its Generals had striven so hard, was at last put away into cold storage, not to be taken out again until peace was restored and the Army could get back once more to " real " soldiering. Yet, strange to relate, from this moment things began to move, never to stop moving until the War stopped too. Within three months, to the astonishment of the whole world—not excepting the Allies, who, up to the very last moment, continued preparations for a great campaign in 1919—the victorious German Army was in full retreat and its leaders sueing for peace.

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Such is the bare outline of the events which have to be interpreted. An official interpretation, issued not long ago " for official use only " (and therefore not available to the public), refers to the great strength of the tactical defensive and the difficulties of the offensive in modern conditions. It seems that, officially at any rate, the problem of attack still awaits solution ; yet it is quite evident that by the end of the War —indeed by the end of 1917—a solution had been found. Throughout 1918, with one significant exception, all attacks, on all fronts, were crowned with a uniformity of success as striking as the uniformity of failure in previous years. Why then should official text-books be so

reluctant to recognize the fact or to describe the solution in clear terms. Can it be that there is still some doubt about it? Perhaps this is the explanation; for, strange as it may seem, there appears to be not one solution but two! A German General has asserted that "it was not the genius of Marshal Foch which destroyed us, it was General Tank," and there are many who are of the same belief. Yet if these people are right there must be another solution, for this one cannot possibly account for the German victories when "General Tank" was fighting on the other side. Quite evidently, this other solution is concerned with the artillery, but why has it received so little advertisement from British writers and historians?

Perhaps the matter of bias may provide an explanation; for the artillery technique of 1918 was a new development, very different from that of pre-War days. It was tried for the first time, by the British at Cambrai, not because of any supposed superiority over its predecessors but solely in order to secure surprise for the tank attack. The British artillery commanders, who also had ideas of what warfare should be like, and whose bias was towards "observed" fire, neither understood nor had any confidence in the new methods, which had, in point of fact, been evolved by the Engineers. Indeed it may be conjectured that they only agreed to give these methods a trial because the offensive was intended to be primarily a tank affair. If this surmise is correct, they would naturally not have expected this trial to yield any lessons on the handling of artillery, and it is no matter for surprise that no such lessons were drawn.

Nevertheless, that there was a lesson can hardly be doubted, for in this battle the British artillery, for the first time, almost overwhelmed its opponents; and although a single German field gun at Flesquieres managed to knock out a number of tanks, the German defensive barrage and artillery retaliation was, for once, practically negligible. The contrast in this respect with the conditions at Passchendaele, only a month before, is glaring, but it is not referred to by either Haig, Fuller, or any other historian of this battle. This is surely a very notable omission, and one which supports the view (for which there is other more convincing evidence in Haig's despatches) that G.H.Q. at least was unaware of the exact significance of the change in artillery technique. Although the results of artillery fire at Cambrai passed unnoticed, the fact that a great surprise had been obtained was patent to all, and this ensured that the artillery methods used there were repeated at all subsequent offensives. It was these methods which enabled Haig to shift the weight of his offensive in 1918 rapidly from one sector to another in a manner which would have been quite

impracticable in previous years, and which account for the hitherto unexplained advantage which the British gained by these unorthodox tactics. These methods did not yet enable the artillery to renew their bombardment immediately after an advance, but they did enable preparations for bombardment to be carried on in one sector while the offensive was proceeding in another. So that when the infantry and tanks outran the possibility of effective artillery support in the latter, the offensive could be renewed in the former without delay, without detriment to the accuracy of artillery fire, and above all without warning to the enemy. It was only by thus shifting the offensive to a stabilized sector that really effective artillery " support " for the infantry or tanks could be obtained, and, as events proved, effective artillery support was more than sufficient to offset the fact that the German positions were better organized or better furnished with trenches and wire.

By this new procedure a real fire-superiority could be obtained in each attack, and with this fire superiority at their command the British could ignore the obstacles which they had formerly regarded as the chief cause of failure. By September, 1918, the British superiority in fire power had become so great that even surprise—reputedly the most powerful weapon in war—had become merely a convenience. General Montgomery-Massingberd, describing the preparations for the attack on the formidable Hindenburg Line on 29th September, states that a strategical surprise was no longer necessary because " such was our superiority in guns, tanks and aeroplanes, that it would be positively to our advantage if the enemy could be induced to increase the number of troops holding the line, as his losses would be heavier and the result of the attack still more decisive." [1]

What then were these new artillery methods which effected such a remarkable transformation in the tactical scene, and how was it that they came to escape the notice of the British Generals ? Without going into details, it is sufficient to say that they depended upon accurate maps from which the correct bearing and range of artillery targets could be measured, and accurate " survey " devices for determining the correct bearings of artillery aiming points, and consequently of the angle to be set on the dial-sight in order to lay a gun in any required bearing. By ensuring the correctness of this angle, these methods removed the principal source of inaccuracy in unobserved artillery fire and enabled the artillery to dispense with observation altogether.

As explained above, however, these methods were not devised or carried out by the Artillery, but by the Engineers, whose courses of

[1] " Story of the Fourth Army," p. 151.

instruction in their use were confined to comparatively junior Artillery officers. Senior Artillery officers were so convinced of the absolute necessity for observation that few, if any, thought it necessary to inquire into details of a procedure designed to eliminate it.[1] Still less were they disposed to attribute to such a procedure the sudden and surprising change in British fortunes at Cambrai and after, especially when this change seemed to be quite adequately accounted for by the tanks. This does not of course imply that the tanks made no contribution to the British victory on that or other occasions. But the fact that the artillery, and not the tanks, were the essential element is clearly established both by the German experience and by the fact that as the campaign proceeded the number of tanks diminished gradually to vanishing point without the slightest slackening in the flowing tide of British victory.

The truth is that the " tactical " influence of the British tanks was moral rather than material, and was not due to any special merits as an armament so much as to a fortunate combination of surprise, propaganda, and pure bluff on the part of the British, and more than ordinary ineptitude on the part of the Germans, whose Generals, finding in the British tanks an excuse for failure which did not reflect on their own capacity, continued to point to the tanks as the cause of all their defeats, until in their anxiety to retain the confidence of their men they managed to destroy the confidence of the latter in themselves. General Fuller has recorded that : " From August, 1918, onwards the success of almost every allied attack was attributed to tanks in the German official *communiqués*. . . . This explanation of any German lack of success by reference to enemy tanks soon produced marked results both in the German soldier and the German public. Since the German Higher Command could explain away failure in the event of tank attack, the German regimental officer came to consider that the presence of tanks was a sufficient reason for the loss of any position entrusted to his care. His men also came to believe that, in the presence of tanks, they could not be expected to hold out. Most German officers, when captured, were anxious to explain that they had done all that could be expected of them. From this time onwards their explanations were generally very simple—' the tanks had arrived; there was nothing to be done.' "[2] General Fuller recounts later an episode in which three supply tanks, arriving opportunely at the front, secured the surrender of a large party

[1] Major-General A. F. Brooke mentions that " The German opposition to the introduction of unregistered artillery support forms an interesting parallel to the unfavourable reception which such methods received in our own Army " (*R.A. Journal*, Vol. LIII, p. 239).

[2] " Tanks in the Great War," by Colonel J. F. C. Fuller, pp. 239, 240.

of Germans, who up to that moment had defied all attacks, while Haig's despatches mention the successful use of dummy tanks.

This is magnificent, but is it really war ? A repetition of this combination of circumstances can hardly be expected, and consequently in planning for the future it is upon the artillery only that the attack must rely. It is artillery, raining down shells vertically from the sky, and not infantry or tanks, firing bullets horizontally along the ground, that constitutes the striking force of modern armies. It is not tanks that have " ushered in a new era of warfare," but the new " survey " methods of aiming, which have freed the artillery from the limitations and restrictions imposed by a system of fire direction depending upon observation. War experience interpreted without, or with a different, bias suggests that the inherent defensive power of modern armaments is so great that a hastily organized defence can only be overcome by a carefully organized attack, and that even then the attack is not likely to succeed unless its organization reproduces, with suitable modifications, the conditions from which the defender has hitherto drawn his strength. For example, whereas the defender can wait under cover until his assailants offer themselves as targets for his fire, the attacker must discover his targets, by guile if possible, but by force if necessary, and as at Cambrai must bring up his troops secretly, keeping them carefully hidden until he is ready to deliver a knock-out blow.

The manœuvre battles and the mobile warfare of pre-War doctrine appear to be gone for good, and it does not look as if either petrol engines or armour-plate will be able to bring them back again. It may be conjectured that, in future battles, manœuvres will be possible only when there are gaps in the hostile line through which the manœuvrers can pass, and that warfare will be " mobile " only while there is no serious fighting.

Does this mean artillery bombardments on the vast scale of 1918, and stalemates until guns and shells in the necessary quantities can be manufactured and conveyed to the battle-field ? Possibly it may, for unless the methods of the Great War can be improved upon the situations of that war will very probably recur ; but the Great War can hardly have exhausted the possibilities of the new artillery technique, for it was still a novelty, very imperfectly understood by higher commanders when the War came to an end. Tactical progress should, it may be suggested, start from the position reached at the end of the War instead of reverting to methods dating from the Middle Ages, and should aim at finding some way of economizing shells by concentrating them only where they are wanted, i.e., upon the enemy, and wasting none on anything else.

Tactical doctrine, which already recognizes that the day of the bayonet is over, and that it is fire which now decides the issue, must see that the change is adequately reflected in battle tactics. It should realize that when the bayonet went into retirement the tactics of the bayonet —that is to say, charges in order to " close with the enemy "—should have gone with it. Military text-books have insisted too long that the only way of destroying the enemy is to close with him. It is fire power, not man power, which now wins battles, and it is fire and not men which should be manœuvred about the battle-field. Tactical formations and procedure which have been designed hitherto to enable infantry or tanks to " close with the enemy " must be replaced by others better calculated to enable him to be attacked by artillery fire.

With the aid of maps and of the new " survey " methods of artillery aiming, fire power can now be manœuvred and concentrated in almost any desired strength at any point or part of the battle-field, with a speed and a certainty utterly impossible twenty years ago, and far beyond the capacity of the fastest vehicle to-day. Only the fringe of the tactical possibilities opened up by this development have so far been touched. War experience suggests a dozen ways in which the high-explosive shell might with advantage be used for work hitherto reserved exclusively for the bayonet man, but tactical doctrine, deeply rooted in the past, and still worshipping at the shrine of " mobility," will not concede either the time or the opportunity for the necessary preparations. There is no more common, nor supposedly damaging, criticism of " survey " methods of artillery aiming than the assertion that they are too slow to be of value in mobile warfare. Yet how can warfare remain mobile if the only methods which, after four years of experiment, were successful in overcoming the modern defence, are rejected as unsuitable? The futility of rushing out into the open on the chance of forcing a close-quarter combat against a concealed enemy of unknown strength has been proved again and again. It is not diminished but increased by adding a load of heavy armour to the handicaps under which the attacker necessarily has to compete. The proper way to attack an enemy hidden in holes in the ground is not to parade one's troops in front of the holes, but to post them in concealment at points commanding their exits and then to drop shells into the holes until the enemy is either forced to come out, or is laid dead within. In the past, such methods could not be used because shells could not be dropped into holes until artillery had established observation and ranged upon each separate hole. This cumbersome procedure is no longer necessary, provided only that a little time, forethought, and education are applied to the task. The only real problem is that of locating the hole, and it will be

time to say that this problem cannot be solved when attempts to solve it have been made and failed.

Troops have not yet been trained, or even asked, to locate the enemy; they have only been ordered to advance and stick him with bayonets, and to lose no time over it. It must, in fact, be admitted that both the methods and the equipment of the infantry are very far from being ideal for location purposes. To those who object that the time required for exact location of the enemy may enable the latter to get his blow in first, it is only necessary to reply that the enemy too must locate his foe or his blows must consist of charges, whether of infantry or tanks, against which defence is now so easy that it can be conducted almost as well by illiterate savages as by the best European troops. Any force that cannot defend itself against such blows had better not take the field at all.

In conclusion, it may be well to remind the reader that the short cuts to victory discovered by tank and mechanization enthusiasts are of the same kind as those of the pre-War musketry experts: they sound well in theory, but, unfortunately and contrary to general belief, they do not work in practice. And for much the same reasons; since the weapons they employ are essentially the same. No thickness of armour, nor any speed of advance, will help one iota in revealing the person of an enemy hidden in a trench, or in putting a bullet through it when revealed! Armour and speed may be ever so useful in war, but they are irrelevant to the main problem, which is that of shooting the enemy before being shot by him. The tank assault, like its prototype the cavalry charge, is wrong in principle because, of necessity, it exposes men to fire which they cannot effectively return. It is therefore foredoomed to failure. The attack must henceforth be based on the principle of getting in the first blow and making it a knock-out. The sudden artillery attacks of the Great War expressed this principle—crudely perhaps, but on the whole effectively. The tactics of the future should be based on the same idea but expressed in better ways.

WHITHER THE TANK BRIGADE?

By LIEUTENANT B. CAREY, Royal Tank Corps.

THE Tank Brigade has just completed its second training season. It has trained mainly for raids into the enemy's country to destroy vital establishments or the enemy's artillery ; but what actually will happen to it when employed against a modern European Power in this way ? The speed of the Brigade is astounding ; control, due to wireless, a sound and practised system of visual signals, and " aides-de-camp," is instantaneous ; we have a very powerful fighting machine ; but what are its weaknesses, and how can we cure them ?

The obvious weak points of the Tank Brigade are :—

(1) The present Medium tank.
(2) The " B " Echelon.
(3) The bridging problem.
(4) The fire risk.
(5) The air menace.
(6) Cost of production and the time of replacements in war.
(7) The problems of how to obtain sleep and what to do with wounded men.

In the following paragraphs each of these is examined and a remedy suggested. All these remedies are problems of design. In conclusion, it is therefore strongly advocated that we pay far more attention to the design of the tank and form a special corps of officers to control tank design.

The Medium Tank.—The medium tank is at present too slow, very thinly armoured, very costly, and as a result of its special machinery takes a long time to produce. Many officers advocate that we should abolish it and have light tanks only in the Tank Brigade. Although the proportion of light to medium tanks may be altered, the medium tank must always remain in considerable numbers. In the end, the answer to the tank is another tank. Therefore a high proportion of our tanks must carry guns, which will pierce the armour of any practicable tank—say 1-inch—at 500 yards range at a 45° angle of impact. That is something of the size of the 3-pdr. Some mediums must carry 3-in. mortars, firing smoke or H.E. The light tank is easily held up by small obstacles ; the medium tank can cross these or flatten them out and form a " bridgehead," while the light tanks get across. The medium tank can crush,

literally, enemy defences, knock down small houses and walls and fight the medium tanks of the enemy. None of these things can be done by the light tank alone. We must, therefore, have a considerable proportion of medium tanks—smaller, faster ones, armed with guns capable of knocking out any other tank and proof against the armour-piercing weapons of the light tank. In peace-time training their need is *not obvious*, but in war, in order to get on in the face of opposition, they will be essential. The remedy for the weak medium tank is *not* its abolition, but its modernization.

The " B " Echelon or M.T. Supply Column.—This will only be safe from enemy interference when it has all the attributes of the Tank Brigade, except great fire power and great agility. That is, " B " Echelon must be armoured, armed lightly, organized to fight and manœuvre, and of fair cross-country performance. The " B " Echelon will itself use up large quantities of stores.

It has been suggested that each tank should pull a trailer carrying a " refill " of petrol and stores for at least another 100 miles, possibly up to 300 miles. This appears to be a method of getting rid of " B " Echelon altogether. The trailers must be splinter proof, have a quick release for use in emergency, be cheap and be designed specially for other uses as suggested below. Since they will cost a mere fraction of a lorry or a tank they can be thrown away if desired when empty.

The Bridging Problem.—The Tank Brigade, when once located in enemy country, will be " boxed in " by a determined enemy. He will destroy all the bridges and hold the crossing places of the surrounding rivers and other natural obstacles. This is *not* impossible. Tremendous preparations were made in the late war for destruction in the event of retreat. A " live " enemy fearing raids by the Tank Brigade will order every bridge in his country to be prepared for instant demolition. The police will be trained to carry this into effect and then sit on these river lines with anti-tank guns. In order to keep mobile, the Tank Brigade will have to be capable of forcing a river line and swimming or bridging it quickly.

The remedy suggested is that the Tank Brigade must include some amphibious light tanks, capable of crossing under covering fire and forming a bridgehead. We must then be able to build a bridge with our empty trailers. They will be so made that they can be bolted together rapidly to form a short bridge, ferries, or floats to help a tank to swim across. When coupled together, they will be pushed in on their own wheels. The roadway will be made with " I " beams, which every tank will carry, instead of useless mudguards. Vital bridges will be held by parties of spare men and weapons, carried on spare trailers and dropped

for the purpose as the bridge is passed. Empty trailers will also be used, as fascines were in the late war, to cross a deep trench or railway cutting.

The Fire Risk.—In the late war, the tank soldiers learnt one lesson above all others ; this was that the petrol tank must be the last and lowest part of the tank. Since the War, the designer has been allowed to do as he liked. He has talked learnedly about " centre of gravity," but he has forgotten that moral must be included in his " moments." Now we have the modern development of the Diesel omnibus engine, and it is essential that all tanks should be fitted with this type of heavy oil engine, but we must still make the oil tank the last and lowest part of the tank. With the present designs, *fire* will be the cause of 50 per cent. of our casualties and of an immediate loss of morale in war.

The Air Menace.

Case 1. *The low-flying attack.*—The tank is utterly unable to defend itself against low-flying aircraft armed with ·5-in. or greater armour-piercing weapons. In fact the modern " sloped back " plates welcome such attacks. Tanks may succeed in hiding from aircraft during the approach march, but they must concentrate and come into the open to attack. Then they are easy prey for the hovering hawks. The remedy is simple. Every tank must be equipped and trained to shoot back.

Case 2. *The bombing attack.*—The aeroplane cannot hit a moving tank with a bomb, but when the tanks harbour, the aircraft will make every effort to locate and bomb them. It is futile to count on the aircraft not finding us. The bombing of tanks in harbour will cause immediate dispersion. At present, whenever this occurs all the bedding and gear will be left behind, probably contaminated with mustard gas and therefore irrecoverable. As this will probably happen on the first night, the raid will stop. The tank must be prepared to move off at a moment's notice. The remedy is to make every tank self-contained as regards bedding and cooking. Folding cots, stoves, and store cupboards must be built in, in order that with a mere " slam of the door " the tank is able to move off.

Cost of Production and Time of Replacement in War.—We must concentrate far more on the use of standard engines and transmission units. In our next medium tank, we must use a standard modern Diesel omnibus engine, otherwise we shall have no medium tanks between the second and eighth month of the next war. Again, we must encourage the production of armour plate. There will be a very serious shortage of this, due to lack of sufficient plant and skilled personnel. Lack of accessibility will be the reason for 50 per cent. of the tanks being " off the road " in war. Days will be spent instead of hours in getting at some vital which has had a bullet in it. Quick replacement by tank crews of

damaged parts and plates must be the basis of our maintenance. Careful design only will permit this.

The Problems of how to obtain Sleep and what to do with Wounded Men.—On long raids the men must sleep. Infantrymen going without sleep merely collapse on the road. If a tank driver falls asleep his whole tank will probably be lost or the column blocked in a defile. We at present must either halt or let men sleep in unarmoured lorries. Design must ensure that in any tank, one man can sleep on a cot. This could fold out of the way in action, but it is essential to provide it.

The wounded man can be put on this cot until he can be disposed of. Design must provide a door, low down, through which the wounded can be evacuated in all tanks. The empty trailer will again come in handy for the wounded. It can hold a special reserve of medical aid and supplies. Groups of wounded men can be dumped with medical personnel and small medical aid posts formed. They perhaps can be picked up on the return journey. Wounded men cannot be taken long distances in a tank: it will kill them and prevent the rest of the crew functioning. They can hardly be put out in empty country with no cover, but if the trailers and wounded were dumped along the main route, the medical staff following in a special Red Cross tank could attend to them, to some extent, as they passed. Many, of course, will become prisoners of war. If bridgeheads are being held, then the wounded can be dropped at these.

Conclusion.

All the weak points discussed can be cured or alleviated by the better design of the tank. We must devote far more time and consideration to design. We must organize our design control staff on better and more progressive lines. A permanent career, with calculated prospects, must be provided to attract equally good brains as the Staff College. This body of tank officers will devote the summer months to handling tank units during training, and in the winter months, get together and control the design. The point is that the officer controlling design must keep in touch by actually doing the training season each year in command of a unit corresponding to his rank (not as a spectator for a few days). When he returns to design in the winter, he must have real power to effect changes. In this way real co-operation between the designer and the user will be ensured.

In war, a proportion of these specially trained officers must be sent overseas and actually go into action, in order to form the *liaison* between the designer and the user. The Tank Corps exists to man tanks, but tanks very rapidly get out of date, and if we do not keep up with modern progress, our tanks will fail in the next war just as suddenly as they succeeded in the last one.

OUR NEXT BATTLESHIPS

THE NEED FOR SPEED

By "OBSERVER."

THE approaching end of the self-imposed prohibition on battleship construction by the three principal naval Powers and the activities of France, Germany, and Italy in building new ships of that class are naturally causing increasing interest in the question of the design of our own future capital ships. This was the subject set for what proved to be one of the most popular and interesting R.U.S.I. Gold Medal Competitions of recent years. The general trend of opinion amongst those who took part in the competition, as shown by the published summary of proposed battleship types,[1] inclined towards a ship of about 25,000 tons, having a speed of 24 knots, with a main armament of eight 13.5-in. guns, and an auxiliary one of a dozen 4.7-in. combined A.A. and anti-torpedo-craft guns; well armoured and possessing great endurance. Possibly the fact that there has been much criticism of the immense size and cost of modern battleships and the knowledge that the British Admiralty have expressed readiness to accept an international limitation of 22,000 tons, combined to exert a moderating influence on the demands of the essayists; but, whatever their other merits, nearly all the proposed designs suffer from the grave defect that they are too slow.

There are still those who, like the so-called Custance school of pre-War days, argue that speed is not of primary importance in battleships; but the lessons of innumerable tactical exercises, to say nothing of those which should have been learnt from the late war, and from the battle of Jutland particularly, are opposed to this doctrine.

In considering this question of speed, we should keep in mind that our main object in possessing a battle fleet is that it shall be capable of meeting *and destroying* the battle fleet of any potential enemy.[2] True, it might effectively cover the operations of all lesser units without fighting a fleet action, even as the Grand Fleet did up to the date of the

[1] See JOURNAL for May, 1935, p. 276–7.

[2] The surrender of an enemy fleet has, of course, the same effect as its destruction; but whereas the former may be one of the fruits of victory, the latter will be a potent factor in hastening peace.

battle of Jutland. It might do so even more effectively if, as the result of an encounter which was not a fight to a finish, the enemy battle fleet was so discomforted that it returned to harbour and refused to risk another general engagement, as was the case after that battle. Yet, until the enemy's battle fleet has been completely destroyed, it must continue to be a menace to our sea security and a factor in disputing that dominance of our sea power which will make for the speedy termination of hostilities. In short, our battle fleet must not be regarded merely as a force which, by clever strategy, can be interposed between the enemy battle fleet and our sea communications, but one to be used to meet and sink its principal opponent.

Strategical and Tactical Needs.

Now, success in a fleet action is dependent on three things—the strategical plan which brings about the meeting with the rival fleet at the right time and in the right place ; the tactical handling of the ships once action is joined ; and, last but not least, the fire effect of their guns. For the first, superior speed is a supreme advantage, especially with the advent of air reconnaissance ; for the two others it is indispensable.

Last year's Gold Medalist seems to have overlooked the fact that the success of a strategical plan can only be gauged by the outcome of the subsequent battle when he says [1] " the means of compelling an action are strategical rather than mechanical," and his example of " intelligent anticipation " which enabled the " Inflexible " and " Invincible " to cross the Atlantic at 12.5 knots and yet reach the Falkland Islands twelve hours before von Spee, fails to take into account the fact that it was the superior speed of our cruisers which enabled them to lay the German squadron by the heels and which led to their destruction. But for that superior speed the " strategic plan " would have had no tactical or practical result, because the enemy would have merely disappeared again into the blue. Nor is it sufficient to say that the speed of our new battle fleet " should primarily be such as to ensure that it has a reasonable chance of supporting its cruisers " ; its speed might be adequate to meet the strategical requirements of a particular disposition of our cruisers in relation to our own battle fleet and that of the enemy, but it might still be insufficient to ensure that the enemy battle fleet shall be forced to fight when it is met.

When we come to consider the tactical requirements of a battle fleet we must be severe realists, not to say materialists ; we must think continually in terms of " fire effect " and not be led to theorize by

[1] Journal for May, 1935, p. 265.

confining ourselves to a study of the relative positions of black and white " slugs " or diagrams of relative courses—own and enemy's. It is damage to the enemy ships which is the ultimate object of all the gyrations of a fleet in action, and of all the ingenuity spent in designing the units which compose that fleet. The be-all and end-all of tactics is to hit an enemy with greater effect than he can hit us, and the accomplishment of this depends on a number of factors; but the primary essentials can be summed up as :—

(*a*) Bringing the greatest possible number of the guns of our ships to bear simultaneously.

(*b*) Distributing our fire so that it will have its maximum effect.

The first is, obviously, dependent on getting and keeping all our ships in action ; if at the same time we can so engage the enemy that the guns of a part of his fleet will not bear or range on some of our ships, so much the better.

Distribution of fire is mainly a matter of fire control—both fleet and individual ship, and is outside the scope of the present article.

If we are to be able to " get and keep all our ships in action " *no matter what the enemy may want to do*, clearly we must have superior speed. It has been argued that a battle fleet with inferior speed may neutralize the threat of a concentration on the van by turning on interior lines ; but, if ours is the slower fleet, this presupposes that the enemy is anxious to engage and will obligingly remain within range on an outer circle, while our fleet retains its relative bearing on an inner arc—an extremely improbable situation. If the two fleets are equally matched and both anxious to engage, the faster one will certainly endeavour to derive some tactical advantage from its superior speed—such as working into a better position as regards light for fire control or air attack, or concentrating on the rear—a more difficult situation from which to extricate a slower fleet.

What is more important, however, from our point of view, is the question of engaging an enemy who is reluctant to let us get and keep all (or any) of our ships in action ; because, except in the unlikely contingency of our fighting a fleet action with the United States, our battle fleet will, we hope, always be stronger than that of our enemy. Before deciding on the characteristics, and particularly the speed, of our new battleships, it behoves us, therefore, to study those of the battleships of other naval Powers, especially the ships which have been built or laid down since we tied our own hands by signing the London Treaty.

Foreign Battleships.

To begin with, there is Germany, who has completed two " pocket " battleships, the " Deutschland " and " Admiral Scheer," credited with a speed of 26 knots and armed with 11-inch guns ; a third ship of the same class is building. Obviously, these ships are never going to risk action with our battle fleet except, perhaps, to harass the van or rear at long range when light and other conditions may temporarily enable them to do so without undue risk. With the exception of our three battle cruisers, the " Hood," " Repulse," and "Renown," we have no ships both fast enough and powerful enough to bring these new German ships to action. Germany is now building two more battleships—vessels of 26,000 tons, which are also, it is stated, to mount 11-inch guns. It is inconceivable that these ships will not be greatly superior in speed to our existing battleships. Again, therefore, the situation is that until we have ships which are at least equal to these in speed and armament, only our battle cruisers could bring Germany's new battle fleet to action—and she will have five ships to our three until we have completed our new battleships.

France has a number of old battleships which are inferior both in speed and efficiency to our existing ships ; but she has two 26,500-ton ships, the " Dunkerque " and " Strassburg," completing. These vessels have an estimated speed of about 29 knots—practically that of our ageing battle cruisers, and their armament is eight 13-in. guns as compared with the eight 15-in. of the " Hood " and the six 15-in. of the " Renown " and " Repulse." Moreover, France is now building a 35,000-ton battleship, and a second one is to be laid down in 1937. These vessels are admittedly designed as a reply to Italy's new battleships ; they are not likely to be inferior to the latter in speed, or for that matter in other respects.

Italy has laid down two 35,000-ton battleships which, according to Admiral Cavagnari, Under Secretary of the Navy, will have " a large radius of action with the greatest speed obtainable—notably superior to the battleships of other nations. . . . To-day—and for no short period—they represent the most powerful ships in the world." Italy is also reputed to have taken in hand her older battleships, re-engined them and increased their speed up to some 26 knots. Here again, until we have new and much faster battleships, we might find ourselves in the uncomfortable position that we could not force the new Italian battle fleet to fight. The difficulty of interposing a slower fleet between a faster one bent on damaging a trade route such as that which passes through the Mediterranean is a further problem which may well give cause for anxiety.

It is clear that the whole trend of battleship design abroad is towards much faster ships, and it is most unlikely that the United States and Japan, when they start building again, will be content with existing speeds or anything approaching them. In fact, if our new battle fleet is to fulfil the primary object of forcing action on an enemy and fighting him to the finish, the ships must have a speed which we can put in round figures as being at least 30 knots.

Speed, Protection, and Armament.

But, the critics will object, this will mean either exceeding the Washington tonnage or foregoing other essentials in the way of armament or protection. Displacement is, of course, the governing factor, and, if only for economic reasons, no one wants to see a return to a race in tonnage. Whatever kind of agreement may emerge from the wreckage of the Washington and London Treaties, it is to be hoped that 35,000 tons, at worst, will remain the limit of battleships displacement; but up to that limit we must build.

The question then becomes one of what is to be surrendered if we are to have the speed we require on a given displacement. To-day protection is second in importance only to speed, for, next to the necessity that our battleships must be able to get and stay where they are wanted, is the fundamental requirement that they shall be able to take reasonable punishment whether by shell, bomb, or torpedo, and remain afloat. Until these two essentials are provided for it cannot be guaranteed that their armament, however heavy and efficient it may be, will function with any certainty. In other words, if there must be economy in the weight of one of the three main ingredients—speed, protection, and armament—which go to make up the capital ship, it will have to be in the latter.

This may seem heresy to those who believe that the gun is the main consideration and the "platform" only an incidental; but again, the battle of Jutland showed us that the Germans were right in surrendering something in weight of broadside to better protection, and that they lost little or nothing in fire effect by so doing.

Within certain limitations, fire effect is dependent primarily on the weight of metal which actually hits the enemy in a given time, not necessarily on the weight of each salvo fired, or that of the individual shell. For instance, the fire effect of eight 14-in. guns mounted in twin turrets should not, in practice, be greatly inferior to that of nine 16-in. mounted in triple turrets: the rate of fire of each individual gun, and therefore of the salvoes, should be greater in the case of the 14-in.

armament. There is also the advantage of not having so many " eggs in one basket."

There are other ways in which weight might be cut down without detriment to protection or armament in our new battleships. The present writer is in cordial agreement with the majority of the essayists for the 1934 Gold Medal in believing that the torpedo armament should go. The torpedo is the weapon of the smaller ship and of naval aircraft ; it has never justified the additional weight and space it has needed in a capital ship.

Further appreciable saving in weight should be possible if, as a number of the essayists suggested, the A.A. and anti-torpedo-craft armaments were combined ; the number of different calibres of guns and control systems, platforms, etc., in existing capital ships has become almost grotesque. Top hamper and the undue elaboration of gunnery, wireless, and even navigational fittings should be rigidly restricted.

Great endurance would not seem to be called for in our battleships. It is not their mission to remain at sea for long periods, and only the American navy seems to contemplate fighting a fleet action on the far side of the Atlantic or Pacific oceans.

In short, it is maintained that our new battleships must be fast—at least 30 knots, or they will not be able to fulfil the role for which they are to be built. They must be well protected or they may be sunk before their armament has proved effective. These two essentials having been provided for, all non-essentials should be ruthlessly eliminated to enable the most powerful armament to be carried on the limited tonnage.

A Fast Squadron.

One further consideration : there will inevitably be a period during which our battle fleet will consist of some old and slow ships, and some new and fast ones. The latter will be useless if they are not given ample freedom of action in battle. At Jutland there were fast ships at each end of the line—the battle cruisers in the van, the Fifth Battle Squadron in the rear. When the main action was joined, the former had already experienced the grave disadvantage of speed without adequate protection and, rightly, did not again seek close action with the enemy's heavy ships ; but at the other end of the line were three battleships which, although they had already been hotly engaged, were still in good fighting trim and had some six knots in hand on the speed of the fleet ; yet for one cause or another they remained tethered to the slow main body, and their superior speed was completely wasted when it might have played a vital part in the engagement.

There can seldom be justification for dividing a battle fleet whose ships are homogeneous in speed, and generally there would be great risk in doing so. On the other hand, there is every reason to give considerable latitude to the Admiral commanding a squadron which is fast enough to harass the enemy without risk of being isolated and destroyed in detail. But best of all is a homogeneous battle fleet whose ships are at least the equals of those of the enemy in powers of attack and defence, and superior to them in speed.

GYMNASTICS AS PREPARATION FOR WAR

AN ITALIAN VIEW

By Sandro Piazzoni.

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ALL effectives intended to carry on war, exclusive of those destined to work for war, who run no personal risks and need make no particularly violent effort nor experience excessive fatigue, should possess certain essential qualities in the highest possible degree :—

(1) Courage—that is, a stout heart and daring mind ;
(2) Good muscles, resilient nerves and sound limbs ;
(3) Good wind ;
(4) The ability to stand fatigue and strain and, in this way, to mitigate the harmful effects of both.

Put thus briefly, it would appear that such arguments are not of any great moment, but if one reflects a little on their solid value, one is compelled to change one's view and to put the question, how are we to promote and encourage these qualities in our men ? The spontaneous reply, given more from force of habit than from real knowledge, is, by means of physical training.

But what, actually, is physical training, and in what way does it serve our purposes ? Physical training is a science by means of which the muscles, nerves, and lungs of a man are trained from the beginning of their growth to maturity with a view to making them capable of carrying out, without injury, the tasks which social life may require of them. Taking it all in all, physical training aims at cultivating the human body from childhood onwards in order to bring it to maturity under the most favourable conditions, and preserve it for as long as possible in the plenitude of its vigour and, in principle at least, in complete health.

In Italy, this grand and socially elevating task has already been given notable and comprehensive development in the Balila Movement, youth associations, pre- and post-military training, physical training in schools, sports organizations, etc. All this work, in so far as it concerns the youth of pre-military age, brings us, who are entrusted with the duty of

turning citizens into soldiers, a notable contribution, since it provides an element physically better prepared and in every way more fitted for our work. It is from this point that our work begins of endeavouring to give our men the essential qualities enumerated at the beginning of this article.

Both military gymnastics and fencing meet the case, but with regard to the latter, although it is included in the former, its great and special importance lies in the field of the training of the cadre of officers, because, owing to its specific difficulties, it is not so suitable for the training of the men. Our regulations for military gymnastics, drawn up in 1928 after five years of preparation and test, although representing a treatise of eminent value, have to-day been superseded by new exigencies created by the calling up of the class of 21-year-old men and the wide-spread development of pre-conscription physical training. In spite of this, the regulations contain standards of method, instructions, and exercises which, if soundly applied and supplemented, will produce profitable results. It is essential, however, to create the definite wish to do gymnastics and to cause them to be done, and also that the men should be in a position to do gymnastics and be taught with intelligence. If this is not the case, we shall only too often have to pass through phases of exaggeration, wholly contradictory the one of the other; either all gymnastics, or else no gymnastics at all, detrimental in the first case to technical and tactical training and in the second to psycho-physical training.

We hold that, in order to clear up the question, it is essential to define the purpose at which military gymnastics should aim, and that, in our opinion, is to give the soldiers (and this term is taken to mean both officers and men) a heart, muscles, and lungs enabling them to face without fear the dangers and fatigues of war, maintaining complete efficiency throughout. This task defines the work to be done, which is of a special character in view of its definite aim: to transform the citizen into the warrior, both in spirit and in body. And if, absurdly, to reach this special goal, we should be compelled to have recourse to methods of instruction in contrast to physical training, we must have the courage to carry through what is bad physical training, but good military gymnastics.

The physical training of our youth is, to-day, turned towards developing in young people all the warlike attributes of the Italian citizen, and this leads us, and will lead us still more in the immediate future, to a new conception of our work. Our recruits—as those who have lived for some years in military units have had opportunity to note—are now more lithe, agile, and stronger than in the past. The wise physical

and sports training given by the State to our boys and girls has begun to bear the good fruit which it had the right to anticipate, and hence our work can, and should, be made more intensive and harder than in the past. It is necessary, therefore, to set our men at once to doing all the exercises which are intended to " make them fit " as quickly as possible and keep them at that level of efficiency. Therefore :—

No preparatory exercises, excepting for a few under-developed men, for whom an educational period is necessary ;

No choreographic and concerted gymnastics involving loss of time without constructive benefit—from the military point of view—aiming solely at satisfying the eye of and giving pleasure to the public ;

A great deal of training in applied and impressionistic gymnastics ;

A great many general strengthening exercises.

APPLIED GYMNASTICS.

Exercises for Speed : Sprinting, relay racing, etc.

Exercises for Strength : Weight carrying, stretcher carrying, etc.

Exercises for Equilibrium : Crossing over balancing bars, over tree trunks thrown over ditches, cornices of walls, etc.

Exercises in Dexterity : Throwing stones and dummy bombs, climbing, scaling, vaulting, exercises on apparatus (parallel bars, rings, fixed bars).

Exercises in Agility : Long jumps, high jumps, standing jumps, hop, skip and jump, etc.

Basic Exercises : Endurance, runs and marches all useful for the individual to acquire good respiration ; swimming games, volley ball, ring ball, football, tug-of-war, water polo, relay races, etc.

IMPRESSIONISTIC GYMNASTICS.

All those exercises oblige the man to face danger and therefore to overcome the impression of personal risk. These exercises also develop pugnacity and consequently help to endow the man to acquire the war-like and psychological qualities which, as we have seen above, are essential for making good soldiers.

Any exercises of this kind will serve for the purpose. It is left to the ingenuity of the commander frequently to invent new exercises, so as to cause his men constantly to face new risks, and this can be attained without ill-effect provided the exercises are prepared with judgment

and forethought. For example, boxing, fencing, wrestling, jumping over various obstacles with and without poles—walls, barrack tables, and benches, battalion carts, more or less heavily laden, mules with pack saddles, bicycles and motor-cycles in motion, jumping ditches full of water, etc., fording torrents with strong currents, night crossings of rivers or sheets of water, etc. Once the instruction of the man has been completed, general strengthening is to be maintained by insisting on the application of gymnastics also when, after leaving camp, the men scatter to their various offices and duties. In this, it is well to include marches in formation, routine, forced and quick, with equipment more or less complete, rationally organized and conducted with judgment. All units, but especially those belonging to the infantry, must be able to march economically over long distances at good speed, above all, in the mountains, without suffering inconvenience.

OFFICERS.

What about the officers ? Anyone having a long experience of army life confirmed by regimental command, will certainly have noted that where the commanders set the example, the men do their best and do it willingly. We, therefore, hold it necessary for anyone commanding troops, up to the commander of the regiment inclusive, to keep himself physically fit, alert, wiry, and capable of withstanding fatigue and effort ; this is an imperative duty and physical fitness should be absolutely a *sine qua non*.

We also hold that regimental and battalion commanders should be imbued with passion and ability for teaching gymnastics, so as to be in a position to organize, direct and control the gymnasium training. Commanders of companies and platoons—and with greater reason all the N.C.Os of the unit—should be able to carry out and to teach military gymnastics. To-day—it is better to be explicit—this is not the case, and what is still more strange is that, on the whole, ability is possessed in inverse ratio to rank. Junior officers are usually less capable, while supernumerary sub-lieutenants are generally at the apex of unpreparedness for teaching and application. Can this be remedied ? We believe it can, and in two ways :—

(1) By demanding that junior officers and, similarly, N.C.Os should seriously take up gymnastics and fencing in the regiments, viz. : gymnastic exercises at the head of the unit, always arranging for those who are not expert special courses to put them in a position to set an example ; this is a question of personal prestige, which should be appreciated by all. Fencing in suitable regimental drill halls, with judge

and with a warlike and realistic background : those who have a sword at their side must be able to use it, and a little of the d'Artagnan spirit would not harm the souls of our officers, while the younger ones stand sorely in need of it.

(2) By the organization of special courses in military gymnastics (not physical training, which is another thing and is not what we require), both theoretical and practical, to be attended by all newly promoted sub-lieutenants before they join the regiment.

With this new leaven of young and well-trained men, all our gymnastic instruction should acquire that exuberance and brilliance of rhythm which alone can give life, ardour and force to our brave and courageous soldiers. But the programme, thus synthetically drawn up, might appear to be purely theoretical unless we also, under its various headings, indicate the methods to be adopted for its practical development.

Where should we do gymnastics ? Everywhere : we should take advantage of sports grounds and fields—it is as well to have both one and the other ; but it may happen that many applied and impressionistic exercises are done in court-yards, in rooms, and in the open field. The wish to take exception to the suggestion would signify a lack of organizing capacity and willingness in the responsible chiefs.

When ? Always. Gymnastics, in addition to all the specific uses we have already mentioned, if well organized and directed, amuse the men, make them more agile, develop their enthusiasm, rouse them ; it is, therefore, necessary to apply them in such a way as not to interfere with professional and tactical training, but to obtain from them the maximum useful effort and to interest the men and give them the desire to improve. One hour per day, either in the morning or the afternoon, according to the season, can always be given to gymnastics ; but in addition, the more diverting and attractive exercises can always be practised during the intervals of outdoor professional instruction. There will be no difficulties if it is firmly intended not to create any. None will be created, moreover, once it is firmly held that gymnastics are of the utmost importance in military instruction, as giving our men the qualities, mind, muscle, and endurance necessary for a warrior.

With men endowed with these qualities of body and mind, the technical work of professional preparation will not only be much facilitated, but undoubtedly more profitable and more reliable, since the technical and tactical training of our soldiers would prove useless unless their hearts and physical powers were trained and ready to dare all and give all.

SECOND-LINE AIRCRAFT

THEIR UTILITY IN THE ARMY

By CAPTAIN I. O'B. MACGREGOR, R.A. (Flight-Lieut. R.A.F.)

THERE seems to be a feeling prevalent in Army circles that in matters connected with the air the executive work must always remain under the control of the Royal Air Force. There is a lurking, though incomprehensible, fear of what a senior officer described as " infringing the patent " whenever the suggestion is put forward that it might be more satisfactory if the Army resumed control of the aircraft and equipment which are supposed to be provided for its use.

This fear of the unknown dates from the time when the Royal Flying Corps was abolished, and all Army requirements in the air were to be met by the newly constituted Royal Air Force. At that time the protagonists of a separate air arm for the Army were defeated, largely on the score of economy due to post-War retrenchment, and the publicly recognized blessings of unity of command, as successfully exemplified by the creation of the Generalissimo in the recent Great War. That this resulted in the expected economy and avoided unnecessary duplication there is little reason to doubt ; but it also had the less desirable effect of divorcing the mind of the soldier from air matters. The barrier of Service, lack of propinquity, the technical " black magic " of aeroplanes, and the reputed danger of flying, all served to increase this ignorance, and for the last fifteen years Army interest in air affairs has been more or less static. The recent intensive air propaganda in the Press appears to have wakened some of the more progressive minds in the Army to the necessity for much closer co-operation, if not for limited control, in matters which are purely an Army, as opposed to an Air Force, concern.

In the early days of the R.A.F. their policy was ill defined. Public opinion would not hear of an avowed policy of bombing what were hazily described as " open towns " ; and even the bombing of strategical points, such as railway junctions, introduced the thorny problem of killing so-called non-combatants. After many years, however, public opinion has been educated to admit of at least the possibility of aerial bombing, and the Air Force have been able to formulate their policy

accordingly. Nevertheless, apart from anti-aircraft defence, the problems of the Army have remained substantially the same. The development of mechanization called for a quicker means of reconnaissance which could penetrate to a greater depth than formerly, and this was ready to hand in the form of the Army Co-operation aeroplane—a fighting machine handled and maintained by the Air Force.

It is not proposed to enter into the merits or demerits of this present system of control in this article, but to draw attention to a factor which was not present when the existing system was agreed upon, and of which the Army have been slow to make use.

This factor is the light aeroplane, which has been steadily developed since the introduction of the first really successful D.H.(60) Moth twelve years ago. With almost negligible exceptions the R.A.F. are equipped almost completely with front-line aircraft. These are heavily-loaded machines, capable of defending themselves in the air, expensive to manufacture, operate, and maintain. The statistical figure for each hour flown by R.A.F. aircraft works out at an average of about £13 an hour! On the other hand, the cost of operating a lightly loaded civil aeroplane of the Moth type, including all overheads, wages, and insurance, etc., is in the neighbourhood of £2 an hour at an outside figure.

There are numerous occasions when aircraft could be of the greatest value, even if they were restricted to operating behind the foremost troops where they would be practically immune from hostile action. Such uses would be :—

Intercommunication.—Visits of commanders or staff officers to distant Headquarters. Delivery of important messages to units if normal communications break down.

Reconnaissance of back areas prior to a withdrawal, lines of communications, and roads.

Observation.—Rapid means of obtaining "bird's-eye" view of general dispositions by commanders and staff.

To use a front-line aeroplane for these tasks is obviously uneconomical, and requests for them are bound to have a cumulative effect on the efficiency of the squadrons called upon to provide them, while the machines themselves are unsuitable for this kind of work. What is required is a lightly loaded aircraft, economical to operate, which can be flown by a pilot who need not have the high standard of training required of an R.A.F. pilot. The machine should be capable of cruising in the neighbourhood of 100 miles an hour, and fly comfortably at about 25 miles an hour. Its fuel range need not be more than an

hour and a half, and as it should use ordinary M.T. petrol and oil, its replenishment is a matter of little difficulty. It should be able to land and take off safely in small fields, say 200 yards by 200 yards, surrounded by a 6-ft. hedge.

When discussing suitable landing grounds it might be pointed out that no country in the world has the proportion of small hedged fields which are to be found in Great Britain; and, as we are unlikely to carry out major operations in this country, a machine which carries out the above requirements should experience little trouble in landing close to any headquarters abroad, excepting, of course, in mountainous country.

With regard to the practicability of producing aircraft with the required performance, it is sufficient to state that there are already light aeroplanes on the market which nearly fulfil the stipulated conditions. The autogiro is also undergoing tests, but its sensitiveness to wind when on the ground, and the size and vulnerability of its moving parts, would appear to outweigh its other advantages for Service in its present stage of development.

Admitting the desirability of such aircraft, the question now arises, who is to provide the machines and the personnel to operate and maintain them? It seems obvious that to use a trained R.A.F. pilot as an aerial chauffeur is out of the question, and that, as the work is merely transportation of Army personnel by more modern methods, the Army should provide both personnel and aircraft. The cost of suitable light aeroplanes should present no great difficulties, as they are already in production at a price in the region of £700, and prices should drop as orders multiply. The saving in prime cost and cheapness in operation should prove a point in their favour in the eyes of the Treasury.

The scale on which these machines should be provided is governed by our old friend the "time and space" problem. As long as modern tactics retain their present form, it would appear that the commander of an infantry brigade would not have much call for an aeroplane. The distances in which he normally operates are relatively short, and on occasion his headquarters may be too close to the enemy to make its use advisable. Its use is analogous to that of the staff car as opposed to the armoured car.

To Corps commanders and their staffs its advantages are plain, and it might also prove of the greatest value to Divisional commanders and their staffs; Cavalry and Tank Brigade commanders; and commanders R.A., R.E., and R.A.S.C.

A suggested establishment for a division might be as follows :—

DIVISIONAL LIGHT AIRCRAFT SECTION.

Section Commander.

Maintenance Personnel.	Operating Personnel.	Equipment.
2 Ground engineers.	4 N.C.O. or soldier-pilots.	4 Light aircraft.
2 Assistants (mates).		
1 Clerk.		

The section would be manned and operated by R.A.S.C. personnel, and commanded by a captain or senior subaltern, who should himself be a pilot. This establishment appears on the small side, but it is based on the practical experience of a flying club.

From this pool the needs of the division should easily be served, and an adequate reserve provided. A similar pool at Corps headquarters could be established for Corps troops.

As the formation of the original section would be in the nature of an experiment, the aircraft could be of different types and makes. Thus a section equipped with, say, an open low-wing monoplane, a coupé high-wing monoplane, an open or closed biplane, and an autogiro, could, by Service trials, decide which type was the most suitable.

TRAINING OF PERSONNEL.

It does not seem to be generally realized that the average person can be taught to fly a light aeroplane in less than a quarter of the time taken to teach the normal soldier to ride a horse reasonably well. Selected N.C.Os or men can be sent to any flying club to take their " A " flying licence. The cost of this works out to about £30 per head. Arrangements might, however, be made whereby pilots could be turned out with a minimum of 15 hours' solo to their credit for £40 a head. Given average weather, this could be accomplished on a five-weeks' course.

Unless R.A.F. personnel could be attached for the purpose, the initial provision of ground engineers would involve the hiring of civilians until R.A.S.C. personnel had been trained to take their places. In civil aviation, the ground engineer is a tradesman who is examined and licensed by the Air Ministry. He is a skilled man and is capable of carrying out practically all repairs on a light aeroplane which do not necessitate replacement. Before an aeroplane which is used for " hire or reward " can be flown, he certifies that it is " airworthy " ; but as

Service personnel do not come under this category, a special class of tradesman could be introduced to meet their needs. With its wealth of mechanical talent, the R.A.S.C. should find it easy to provide a sufficiency of candidates to avail themselves of a course to obtain the requisite qualifications, especially if successful candidates were rewarded with a commensurate increase in pay.

The assistants to the ground engineers can be selected from the younger soldiers in the Corps ; and they should be encouraged to understudy their G.Es with a view to qualifying in the same trade later on. Long-term men only should be chosen, and they should be required to sign an undertaking to remain in the Service for a period after qualifying.

Normal repairs could be carried out in R.A.S.C. or Ordnance workshops, but it would be advisable that annual overhauls should be executed by the manufacturers.

As nearly all light aircraft to-day are of the folding-wing type, accommodation under cover is easily arranged, and for short periods they can remain in the open without great risk of damage.

It has only been possible here to outline the possibilities of the scheme ; but even if the bogey of " infringement of patent " has yet to be proved more illusionary than real, it may be noted that the R.A.F. have already " infringed " the Navy's rights by running launches and speed-boats for target practice, and the rights of the Army by operating armoured cars in the Middle East.

There are some who claim that our Army will be unable to leave the shores of Great Britain in the face of strong aerial opposition from our continental neighbours ; but, while the Army exists in its present form, it must be equipped to carry out its tasks as efficiently as possible. There is little doubt that, as the aerial demands of the Army become more exacting, the willingness and ability of the Air Force to meet them tends to decrease, for, after all, they are sidelines which cause diversion from the main policy, and as such they are not likely to be encouraged.

UNIFORMS, EQUIPMENTS, STANDARDS, AND COLOURS OF THE BRITISH ARMY

IN last quarter's JOURNAL details were given of an organization which has been devised to compile a Summary of Information on the old uniforms, equipments, standards, and colours of the British Army.

This will take the form of a loose-leaf catalogue which will be kept in the Library of the Royal United Service Institution, where it will be readily accessible to those seeking sources of information on such subjects.

A Central Committee, to be known as the Royal United Service Institution Uniforms Committee, met under the chairmanship of General Sir Robert Whigham, G.C.B., K.C.M.G., D.S.O., on 16th October. It is the purpose of this Committee, which includes a number of well-known experts, to co-ordinate the work of the Regimental Representatives and others engaged in collecting information, and to provide expert advice and assistance when required.

The following members of the Committee have been good enough to offer their services as consultants for certain groups of regiments, should Regimental Representatives find they require assistance in enlarging the scope of their inquiries or in clearing up doubtful points :—

Group.	*Member of the R.U.S.I. Committee.*
Cavalry	Mr. G. H. Brennan.
Foot Guards . . .	Captain the Marquess of Cambridge, G.C.V.O.
Fusiliers	Captain H. Oakes-Jones, M.B.E., F.S.A.
Light Infantry and Rifles .	Major H. J. Parkyn, O.B.E.
Other Line Regiments in the Northern and Western Commands	Lieut.-Colonel H. H. Douglas Withers, M.C.

It is hoped that other experts will be forthcoming to act in a similar capacity for the remaining groups.

Letters have been addressed to the Regimental Representatives who have been appointed up to date, explaining the foregoing arrangements in greater detail.

Letters of introduction can be given through the Royal United Service Institution to Regimental Representatives and others working on this project, to the authorities in charge of museums, picture galleries, and private collections, where this might be helpful to them.

The following Regiments are now identified with the scheme :—

The Life Guards.
Royal Horse Guards (The Blues).
The Queen's Bays (2nd Dragoon Guards).
4th/7th Dragoon Guards.
5th Royal Inniskilling Dragoon Guards.
The Royal Scots Greys (2nd Dragoons).
3rd The King's Own Hussars.
12th Royal Lancers (Prince of Wales's).
13th/18th Hussars.
14th/20th Hussars.
15th/19th The King's Royal Hussars.
16th/5th Lancers.
Royal Regiment of Artillery.
Corps of Royal Engineers.
Grenadier Guards.
Coldstream Guards.
Scots Guards.
The Royal Scots (The Royal Regiment).
The Queen's Royal Regiment (West Surrey).
The Buffs (Royal East Kent Regiment).
The King's Own Royal Regiment (Lancaster).
The Royal Northumberland Fusiliers.
The Royal Warwickshire Regiment.
The Lincolnshire Regiment.
The Devonshire Regiment.
The Suffolk Regiment.
The West Yorkshire Regiment (The Prince of Wales's Own).
The East Yorkshire Regiment (the Duke of York's Own).
The Bedfordshire and Hertfordshire Regiment.
The Leicestershire Regiment.
The Royal Scots Fusiliers.
The Cheshire Regiment.
The South Wales Borderers.
The Cameronians (Scottish Rifles).
The Worcestershire Regiment.
The Duke of Wellington's Regiment (West Riding).
The Border Regiment.

The Dorsetshire Regiment.
The Prince of Wales's Volunteers (South Lancashire).
The Welch Regiment.
The Oxfordshire and Buckinghamshire Light Infantry.
The Essex Regiment.
The Loyal Regiment (North Lancashire).
The Northamptonshire Regiment.
The Royal Berkshire Regiment (Princess Charlotte of Wales's).
The Queen's Own Royal West Kent Regiment.
The King's Own Yorkshire Light Infantry.
The King's Shropshire Light Infantry.
The King's Royal Rifle Corps.
The Highland Light Infantry (City of Glasgow Regiment).
The Gordon Highlanders.
The Royal Ulster Rifles.
The Royal Irish Fusiliers (Princess Victoria's).

Useful reports have already been received from the Life Guards, The Royal Scots, The Buffs, The East Yorkshire Regiment, The Royal Scots Fusiliers, and The Border Regiment.

It is hoped that regiments from whom replies have not yet been received will also co-operate.

THE ARABIAN SURVEY FLIGHT

TYPICAL COASTAL COUNTRY

THE ARABIAN SURVEY FLIGHT

By Flight Lieutenant F. M. V. May, R.A.F.

WITH the exception of the local ¼-inch to 1-mile sheet, which is not accurate, the hinterland of the Aden Protectorate is unmapped. The 1/1,000,000 maps which cover the area from Perim to Muscat are constructed on very little survey and mostly made from caravan routes, travellers' tales, and a vivid imagination. In certain districts the cartographer has been honest with himself and one sees, printed across a vast area on the map, " unexplored territory." The only reliable part of the map is the coast line and, on inquiry, the Hydrographic Department of the Admiralty stated that even this had certain points with a North-East meridianal error of one minute of longitude.

Prior to 1928, when the Air Force took over the command in Aden, the inaccuracy of the maps did not matter so greatly, because the movements of the Army had of necessity been confined to a small area round the settlement and then only to the main tracks and caravan routes—of necessity, because of the nature of the terrain. Generally speaking, the Aden Protectorate consists of a maritime plain, the foothills, and the mountains. The first is a desert, with literally nothing but shifting sand and occasional camel thorn, for a belt varying in width from fifteen to thirty miles from the coast. The sand is soft, and off the very few tracks only camel transport can move ; vehicles, particularly armoured cars, even with special sand gear, are useless once they get off the tracks. The foothills appear like small rocky breakers in a sea of sand with areas of cultivation around the wadi-beds, while the mountains are impenetrable barriers rising to a height of eight and nine thousand feet above sea level intersected by steep-sided canyon-like wadis.

The tribes of the Aden Protectorate inhabit these mountains and they are literally unapproachable by land forces. It was estimated that the minimum requirement to drive back the forces of the Yemen through these mountains in 1928 would have been a division and that it would have cost six to ten million pounds. The Royal Air Force did the job successfully with one squadron at a cost of eight thousand pounds.

Anyone with any experience of air control in uncivilized areas knows how important accurate maps are. Inter-tribal boundaries

follow the strangest lines of configuration and hostile villages may be separated from friendly tribes by only a few hundred yards in certain cases. Failing maps, mosaic photographs must be made and copies produced for pilots and air gunners. Between October, 1933, and March, 1935, the squadron in Aden took part in six active operations against sundry tribes, and in each case the Arabian Survey Flight first mosaiced the area and produced innumerable prints of target pin points, in addition to sketch-maps and line overlaps and obliques. This was quite apart from the hours spent by other aircraft flying round and round in small circles while painfully air-sick Arab agents endeavoured to distinguish friendly village from hostile village for the benefit of, probably, an equally air-sick political officer; all of which meant a wastage of flying hours which accurate maps would have eliminated.

The Arabian Survey Flight was formed in May, 1934, with two Fairey III.Fs from No. 8 Squadron, plus flying and maintenance personnel and the entire Squadron Photographic section. The survey cameras used were the F8 type with 7-inch lens. The object of the survey was to cover the area with a 1/253,400 scale map to join on to the existing sheet, but as has already been shown, the existing sheet was insufficiently surveyed and it was later decided, if possible, to cover that area as well.

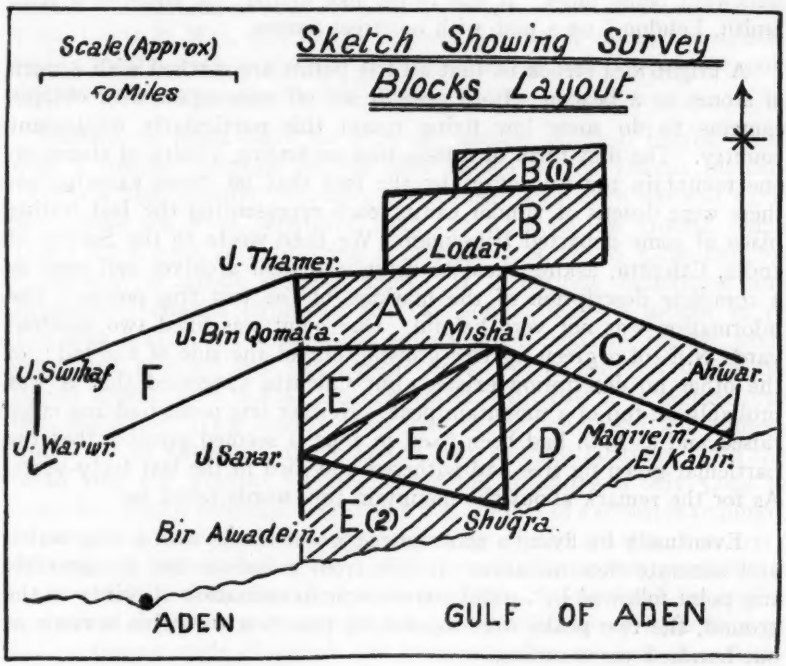
The chief difficulty initially lay in the sparseness of ground control points recognizable from the air. An air survey cannot be carried out entirely from the air without some assistance from the ground. A certain number of points in the area to be mapped must be fixed astronomically by astrolabe or theodolite before the actual photographic work commences. The area to be mapped is usually divided up into a number of rectangular blocks of about a thousand square miles area each, and the minimum requirement from the air is that the corner points of each rectangle shall be fixed (or trig) points marked in such a manner that they will appear on a photograph taken from the working altitude of the survey. Owing to the inaccessibility of the mountains it was impossible to get a ground survey party with all their instruments, chronometers, etc., to points where one would have normally liked and therefore one had to improvise with the following:

(*a*) Existing trig points fixed by the Survey of India in the XIXth century.

(*b*) Five landing grounds, whose circles were fixed by Major Fryer, R.E., in 1932.

(*c*) Two points fixed on the coast by astrolabe observations of Admiralty survey vessel H.M.S. "Ormonde" in 1934.

As a result of this somewhat miscellaneous collection at hand when the Survey Flight was formed, the blocks as seen from the sketch-map cover the area in a somewhat peculiar manner.



"A" Block was given to the Flight by the War Office as an experimental first block, the corner points being Lodar Landing Ground; Mishal Landing Ground; Jebel Thamer; Jebel Bin Qomata.

Of the first two which were fixed by Major Fryer, the point fixed was the centre of the circle on the landing ground and considerable difficulty was experienced in getting the circle—which was whitewash—to show up against the white sandy surface of the landing ground. Jebel Thamer and Jebel Bin Qomata where shown quite clearly upon the existing maps of the Aden Protectorate, but locating them accurately for survey purposes from the air proved an entirely different matter. Both are mountain peaks, one being 8,041 feet above sea level and the other 7,965 feet above sea level. The trouble was that the entire countryside for hundreds of square miles round was composed of nothing else but jagged mountain peaks. On the map (uncontoured) the location of the peaks seemed simple as they were clearly marked

with a black dot and a triangle, but our first effort to find them resulted in confusion. Both pilots flew over the area in an optimistic frame of mind on the first day, but on discovering the difficulty returned with somewhat blank faces: it was rather like finding the house of "John Smith, London," on a map with no street names.

A bright idea struck us that all trig points are marked with a cairn of stones or a beacon. Both aircraft set off once again with oblique cameras to do some low flying round this particularly unpleasant country. The first thrill of satisfaction on finding a cairn of stones on one mountain top was offset by the fact that on closer examination there were dozens of similar cairns, each representing the last resting place of some departed tribesman. We then wrote to the Survey of India, Calcutta, asking them to delve into their archives and send us a complete description of the marking of the two trig points. The information was not very helpful. One point was fixed two hundred yards N.E. of a green fig tree growing out of the side of the hill; of the other no description existed, but Calcutta suggested that it was probably on top of a mountain peak. Neither trig point had any cairn raised and as both had been fixed in 1893 it seemed possible that the particular green fig tree had withered and died in the last forty years. As for the remark about the mountain top, words failed us!

Eventually by flying a series of reciprocal tracks with a stop watch and accurate determination of drift from a known and recognizable trig point followed by careful stereoscopic examination of prints on the ground, the two peaks were located by resection to within a circle of one hundred yards radius.

"A" Block was then surveyed by a method known as the "Arundel" method, which had been developed by the Air Survey Committee. The perimeter of the rectangle was first flown. The longer sides were sixty miles in length and since the area covered by one exposure was approximately 1½ miles square, the run had to be flown within an accuracy of 2° in order to finish over the right place. In excusing myself for doing this six times on the northern boundary before I was successful, I may point out that it was my first attempt at really accurate flying, furthermore the run bearing coincided with a high plateau escarpment over which the bumps proved decidedly awkward.

The perimeter runs were then plotted by two Sappers attached to the Flight from the 20th Fortress Company R.E., whose O.C., Captain K. H. Lockhart, R.E., acted as ground control and general liaison officer throughout the survey. Navigation tie strips were then flown and a skeleton mosaic laid down to a uniform scale for marking out check

points. The filling-in runs were then flown East and West until the entire block was covered.

" A " Block was finished in 120 hours flying by two aircraft in one month. It covered an area of about 1,100 square miles. Remembering that it was in May, one of the hottest months in Aden, this speaks highly for the work of the two fitters and riggers and the photographic personnel labouring in the dark rooms.

Before we could carry on with our survey, political trouble arose over a frontier question on the area known as the Dhahir plateau. This is a high country adjoining the Yemen between 6,000 and 8,000 feet above sea level, separated from the Khor or low ground round Lodar by a long cliff dropping a precipitous 4,000 to 5,000 feet for a distance of about seventy miles. It is entirely unmapped and Intelligence Branch requested that we should make a mosaic of it. The area was about a thousand square miles, and the mosaic when completed covered half the hangar floor. It is believed to be the largest mosaic ever made. In connection with this it is pointed out that the Fairey III.F loaded down with desert equipment and camera would not fly efficiently above 12,500 feet in those latitudes, with the result that the working altitude above the ground was only 5,000 to 6,000 feet with a resultant increase in the number of exposures required. Atmospheric conditions over the cliff edge of the plateau were very difficult: a strong katabatic wind on several occasions produced a starboard drift of over 30° or a wind of sixty miles per hour, whilst the downward drop was very appreciable. At full throttle and climbing at the maximum angle of attack one frequently lost 500 feet in a thirty mile run at 12,500 feet.

In intervals of bad weather on the plateau the Arabian Survey Flight completed a town planning survey of the Aden Peninsular from 8,000 feet and also completed some filling-in runs on the Anglo-French Somaliland frontier for the Anglo-Ethopian Boundary commission.

The mosaics of " B " Block on the Dhahir Plateau proving altogether too unwieldy a proposition for ordinary use, a sketch-map was made from them for H.Q.B.F.

In August, work was commenced on " C " Block (see diagram), of which the corner points were again Lodar and Mishal plus Ahwar Landing Ground, whose circle had been fixed by Fryer, and an Arab fort on the coast at Magriein-el-Kabir which was fixed by a landing party from H.M.S. " Ormonde " by astrolabe observations. There was a lot of unproductive flying on this block owing to the distance from

Aden and the inability to tell what local weather conditions were like over the block without flying there to find out. However, the work went on slowly but surely until the beginning of October when there was another frontier disturbance. This time Zeidi troops from the Yemen had invested one of the Aden Protectorate towns near the frontier called Am Turba, and it seemed as though pressure would have to be brought to bear on the Imam to make him withdraw. As a result, a horde of armourers clustered round the Survey Flight machines and covered them with bomb racks and Vickers guns. We pilots and the air gunners of the Flight trailed about over the bombing range and camera obscura while the Survey temporarily came to a full stop.

After a period of tension and some demonstration flights the crisis was settled amicably and the Survey Flight again commenced work. First there was some more survey photography required by the Anglo-Ethiopian Boundary Commission on the Abyssinian frontier which gave us a very pleasant week at Buramo and then we returned to Aden and carried on with " C " Block. By the middle of November it had been almost completed when trouble broke out with the tribes in the Upper Yaafa country. The popular pastime amongst these sportsmen had been for years lying on their backs and shooting at aeroplanes as they passed over on their appointed businesses. Nobody minded much, but when the Intelligence Officer went to reprimand them and they chased him down the wadis with more bullets, accompanied by harsh words and abuse, it was decided that this was going too far and that a sharp lesson should be administered. Messages were dropped demanding that the culprits should come in and have judgment given upon them. The messages produced more rapid rifle fire and nothing else. Then they were given so many days warning and still nothing happened, and so it was decided to drop a bomb or two on the chief offenders' villages, first, of course, warning them to clear out.

The map of the Upper Yaafa territory is particularly unenlightening. Its large white expanse has been known to suggest to new pilots that they will find a nice flat desert in the district. In actual fact, more land has been squeezed up into vertical-sided mountains in this area than anywhere else in the world, except possibly the Alps, and a closer examination of the map will show in small lettering " unexplored territory." Judging by the nature of the country, not to mention the unfriendly attitude of the local inhabitants, this is not surprising. The Arabian Survey Flight therefore made a mosaic of the area and a sketch map from the mosaic. In addition pin-point photographs of each objective were carried by all pilots and air gunners. The Survey Flight aircraft accompanied each raid and took photos of the bursts and

the objectives after bombardment, from the stereoscopic examination of which it was possible to estimate the extent of the damage—the actual as opposed to the reported. Incidentally this led to a certain amount of argument between the squadron and the Survey Flight; though the camera cannot lie, an air gunner may do his best.

As a result of these operations in the Upper Yaafa, " C " Block was not completed until the end of December, 1933, and in the following month work was commenced on the triangular area known as " D " Block. Two of the trig points on this block were already known and the third, Shugra, was fixed by H.M.S. " Ormonde " who astrolabed the Sheikh of Shugra's house. " D " Block was barely completed before trouble began in the Bakri country. By a treaty with the Imam of the Yemen, all Zeidies in the Aden Protectorate were withdrawn over the frontier. The Zeidis are the fighting tribes of the Yemen, similar in characteristics to the Pathans, and for years they had oppressed the Aden Protectorate tribes. When they were withdrawn by order of the Imam, the British Government promised them safe custody over the border, giving orders to this effect amongst all the Protectorate tribes. Unfortunately the temptation was too strong for the Bakri and they beat up a Zeidi caravan leaving for the Yemen. The fine demanded by the Government was not forthcoming and there was the usual shooting at aeroplanes and rude messages to the Resident, with the result that punitive bombing had to be carried out. The area was a fairly large one and there were eighteen objectives in all—villages, forts, etc.

The Survey Flight prepared mosaics and target photographs and generally assisted in the operations which had barely ceased when there was a further rumpus a hundred and fifty miles away at Beihan-el-Qasab. This time the Alowi tribe were harbouring three escaped murderers from the Yemen and refused to give them up. Again the Survey Flight made a mosaic and gridded off target photographs. The two Survey aircraft flew the photographs up to Beihan for the political officer, Colonel Lake, M.C., to mark in the chief offenders' houses in the town, and had an engine failure on the landing ground. Being unable to trace the trouble we spent the night out with the aircraft. In view of the fact that there was a hostile tribe about 400 yards on the other side of the wadi and our total armament, apart from an air-cooled Lewis gun, was one Colt .45 and a couple of Very pistols, the night's rest was not so congenial as it might have been. However, nothing untoward happened, and both aircraft returned at daybreak the next morning. The following day bombing operations commenced against the tribesmen who had missed their opportunity.

A week after this trouble had been settled, Bedouins in the Haushabi country began raiding caravans and the Survey Flight was called in for photography and co-operation with the Aden Protectorate armed levies which lasted up till the end of February.

In March, caravan raiding spread to the Qoteibi tribe who inhabited a large mountainous and badly mapped area, again calling for mosaics and photography. The succeeding operations lasted for two months, introducing the air blockade system, which, of course, included night raids in addition to continuous day patrols. It was not until May, 1934, therefore, that the Survey Flight could work again as a Survey Flight.

The next block was " E " Block, another triangular area as shown in the diagram which was completed by the end of the month of June. This was held up by bad weather and by demands from H.Q. for overlaps and photographs of a new landing ground and rest camp site on the Audalhi plateau. At the end of June, both aircraft of the Survey Flight proceeded to Somaliland to complete the work for the Anglo-Ethiopian boundary. This took a fortnight and proved a welcome change from Aden in the hot weather. The landing ground used for the camp was Buramo, which is 4,500 feet above sea level and situated in pleasant wooded country. Urgent signals howver recalled us, as there was friction in the Subeihi country and mosaics were urgently required. These were made and the Squadron was once more ready for operations. Fortunately, this time, the turbulent sheikhs in question knuckled under before any bombing was necessary.

For two days the Survey Flight flew over E(1) Block when a further disturbance occurred. While the political officer was making a periodical visit to the Aulaqhi tribe, the aircraft in which he was flying had no sooner landed at Ahwar than it was met by a fusilade of miscellaneous size bullets from the edge of the landing ground. The pilot decided to call another day and took off again with several leaden souvenirs decorating his aeroplane. As usual, the maps were useless—Major Fryer found Ahwar fifteen miles away from its map position by astronomical observations—and the Survey Flight was called in again for overlaps and photographic pin points of *dars* belonging to the offenders. These completed, operations took place against the Lower Aulaqhi tribe until the *dars* had been demolished.

This brought us to September, 1934. From then until Christmas was comparatively peaceful in the Protectorate and the Survey should have gone on smoothly. Unfortunately the trooping season in November took away one of the pilots and both air gunners, which meant time lost in training new personnel. However E(1) and E(2) Blocks were completed and work had just commenced on " F " Block

when the Flight was disbanded to help form the West African Flight. In March the Flight commander—the present writer—returned home.

In spite of the various interruptions the Flight did achieve a fair amount of work and covered in all about 7,500 square miles of country apart from the operational mosaics.

One word about the aircraft and engines: both functioned perfectly throughout the Survey—the failure mentioned at Beihan was merely a faulty pressure gauge, otherwise no trouble of any sort was experienced. The writer flew some seven hundred and sixty hours over country where an engine failure meant an almost certain crash; that there was no such failure is a striking testimonial to the design and manufacture. Last, but not least, tribute must be paid to the fitters and riggers for their high standard of maintenance.

THE ART OF GIVING A LECTURE

By GEOFFREY CRUMP, M.A.

On Wednesday, 16th October, 1935.

VICE-ADMIRAL R. M. COLVIN, C.B., C.B.E., in the Chair.

THE CHAIRMAN in introducing the Lecturer, said that some years ago it would have required a good deal of hardihood to ask officers of the fighting Services to give their attention to the desirability of studying the art of speaking and lecturing, but nowadays a great deal of the instructional work in the Services was done by means of lectures. Moreover, the various war memoirs had shown that it was very desirable that senior officers should be able to express their ideas clearly to statesmen and others, also what unfortunate results had followed from their failure to do so. It was no part of their business to be spellbinders or silver-tongued orators, but they ought to be able to say what they wanted to say in words which would be understood. That was not so easy as it sounded, but Mr. Crump, who lectured at the War College and at all three of the Staff Colleges, would be able to give some very valuable advice towards achieving that end.

LECTURE.

IT is a common habit with speakers and lecturers to preface their remarks by saying, " Now, I'm not going to make a speech," or " I don't want you to think of this as a formal lecture—I've just come to talk to you a bit about so-and-so." They realize that most English people hate listening to speeches and lectures, and the instinct is, therefore, to pretend to the audience that nothing could be further from their mind than inflicting such an ordeal on them—and then they proceed to make a speech or deliver a lecture! If their manner is sufficiently agreeable and the subject-matter sufficiently interesting they may be able to keep up the pretence of not doing so, but I, at any rate, cannot get away with that to-day. Not only have I to give a lecture, but I have to give a lecture on giving a lecture, which means that I have got to stand up here and provide you with opportunities of saying, " Well, why doesn't he practise what he preaches? " I hope, however, to evade such criticism by explaining that, whenever I am not showing you how to do it, I am showing you how not to do it—and then leave it to you to judge which is which.

The one claim that I do make for what I am going to say is that I believe it to be practical. My profession is that of a teacher and lecturer in English literature and language, and in elocution; and most of my leisure is devoted to reading, writing, acting, and producing plays, so that what I have to say is based on experience rather than text-books.

PREPARATION.

Before speaking about the actual delivery of a lecture, I want to say something about preparation. One hears some pretty bad speakers —or rather the trouble is that very often one cannot hear them. But if a speaker is at least audible, any shortcomings in his performance are more likely to be due to inadequate preparation than to manner of delivery. So I think it is important to devote some attention to this matter.

The first essential of a speaker is to have a definite aim : this sounds obvious enough, yet it is an essential that is often neglected. It is not sufficient, for example, to sit down to write a paper on " The Future of the Internal Combustion Engine " ; you can adopt such a title if you like, but before you begin to write you must know, and you should be able to state in a few words, exactly what you are going to say about the subject. If your lecture has been a good one the same should apply to your audience afterwards ; any member of it who is asked " what did he talk about," should instinctively reply, not " Oh, communications," but " codes," or " staff organization," or whatever you had decided on as the aspect of " communications " that needed special emphasis. Your lecture will have covered a lot of other ground as well, but, unless you gave your audience something very definite to carry away with them as a chief idea, it is probable that what you said will be forgotten in a very short time.

This is most important. The greater part of what one reads and hears is needlessly complicated, and makes demands on the attention and memory that few of us are either able or willing to supply. The principle of concentrating on some definite line of interest should guide you whatever you have to talk about. Sometimes you may choose your own subject, sometimes the subject is selected for you ; but in either case the thing to do is to select the aspect of the topic that interests you most, then there is every chance that you will interest your audience. Keenness is infectious ; given the technique of expression, any speaker is sure of success if he knows his subject and is keen about it.

If no time is available for preparation, go through the same process. Even if you are suddenly called upon to make an " after-dinner " speech about some subject that seems to you quite barren of interest you may yet find some aspect of it that interests you : concentrate on that. The only way to be interesting is to be interested. Impromptu speaking, with a little practice, offers few terrors to those who are accustomed to preparing more elaborate utterances, because they stand up to speak, even if only for two or three minutes, with their plan and their aim clear in their minds, and so with certainty and self-confidence.

The success or failure of what you are going to do will depend very largely upon the way in which you thus " limit " your subject—and that needs hard and careful thinking. Ideas that are of any value generally take time to come ; it is not usually worth while taking much notice of the first ideas that drift into your mind. Perhaps you remember the old-fashioned fish-tail gas-burners ; when one of them was turned on, especially if it had not been in constant use, a flow of air would come out, and that had to disperse before the gas came. Your thinking apparatus works very like that—and it is a great mistake to try and use the air, which is a poor substitute for gas.

Let us begin at the beginning. Your subject having been selected, the next thing is to collect material. A " rough copy " is generally desirable, but the first rough copy should not be in connected prose, but ideas jotted down anyhow. Put off the moment of writing as long as possible ; once you put your ideas into shape, they crystallize in your mind, you get fond of them, and it is exceedingly difficult to alter them. Keep your ideas fluid till the last possible moment, and the final result will have a far better chance of being clear and logical. Most people who write at all easily find it hard to resist beginning to write before they have finished their preliminary thinking. A famous dramatist, when asked how he was getting on with his play, replied, " it is finished ; I have only to write it now." That is the secret of good work. All must be clear in your mind before it is put into its final form.

It is better, therefore, to think of your rough copy as a sort of " dump." Put down everything that comes into your mind, if it has any conceivable connection with your subject, and go on doing this until some promising line of thought begins to form in your mind. Then decide on your aim, and ruthlessly cut out everything that is irrelevant to it, however interesting such things may be in themselves ; arrange the selected material into a logical plan ; then write, and then revise. The whole process may be summarized as follows :—

Choice of subject.
Collection of ideas.
Decision on aim.
Selection of material.
Arrangement of material.
Writing.
Revision.

The arrangement of your material is probably the most difficult part of the whole business, especially when it has to be done rapidly and in the head ; but it is very important, for the most interesting paper may be rendered quite unintelligible if the development of the thesis is not

clear. Yet there can be no fixed rule as to form. Your plan is your framework, and the only essential of a framework is that it should be shapely and should fit the work. There must, however, be onward movement all the time, and this movement must be ordered and logical. Most compositions, whether on a large or small scale, tend to fall into three divisions, like the three acts of a play—a beginning, a middle, and an end; and you will find that the best principle to go on. In old-fashioned five-act plays the principle was really the same, only the middle act was lengthened into three. In the same way, only very short compositions can be paragraphed in the three-fold form, but, however much the middle part is elaborated, the composition as a whole should retain this character: the subject should be introduced, discussed, and brought to a conclusion. Let us consider these three processes in more detail.

The introduction should not be too formal, nor too long. Examine the beginnings of essays by famous writers or articles in the best journals of to-day, and you will notice that all these writers seem to have a genius for getting straight to the point. Bacon, writing about Death, does not begin—"This is a subject which has exercised the minds of our greatest thinkers from time immemorial"—and so on; he says—"Men fear death as children fear to go in the dark." My own practice is not to bother much about the beginning, and I usually find that if I cross out the first paragraph, the article begins very well at that point. There is nearly always a lot of dead wood to be cleared away, and that is a good way to start the process. Remember, too, the value of climax, of creating a feeling of tension and expectancy in your audience, and do not state too definitely, in your opening remarks, what you want to lead up to. For example, if you are speaking about "The Abolition of Air-bombing," you might begin by saying, "The problem of the future of the aeroplane lies at the root of all modern strategy." But if you begin "It is essential that air-bombing should be abolished," there is little reason left for your audience to listen to your lecture. They know what you think; you have told them at the outset what you should impress on them gradually by careful and methodical argument.

About elaboration I can generalize very little, except to repeat that it must be methodical, however simple the subject. Some knowledge of the principles of logic is very desirable for anyone who wants to be able to handle an argument effectively. Logic is a subject that used to be widely studied; it is a pity that it has fallen into disrepute, because a great deal that one hears and reads is obviously deficient in logical reasoning. It is, at all events, advisable to understand the nature of a syllogism, and to be aware of the commonest logical fallacies. Needless

repetition should, of course, be avoided ; but most speakers are much too frightened of saying a thing twice. Not only is it helpful to gather up the threads of your argument as you go, but most audiences need to be told a thing more than twice if it is going to make any real impression on them.

Paragraphing plays a very important part in clarifying the sequence of thought in a speech or lecture. Just as a sentence consists of a group of words and phrases dealing with one topic, so a paragraph is a group of sentences dealing with a wider topic. Although the grouping of ideas into paragraphs is important, what is still more important is the co-ordination between paragraphs so that the development of the argument is perfectly clear. If you examine carefully the paragraphs of a good writer or speaker, you will find that he frequently begins with sentences such as " This, however, is not always true " ; " Of the three methods that have been suggested, the first . . . " ; " But this is a digression ; we were about to consider . . . " ; " or " In spite of all that has been said . . . " If constant attention is paid to the correlation of paragraphs, we force ourselves to ensure that our material is in the right order—a most important matter that is sometimes overlooked in our plan.

Well, so much for the middle part—the elaboration. The ending should present few difficulties. Sometimes it is desirable to sum up what has been said, sometimes to end by drawing the conclusion to which you have been leading. The only hard and fast rule is never to introduce new matter into your final paragraph. If the whole thing has been well planned, it will usually be found satisfactory to leave off when you have finished what you had to say, without any artificial ending.

Good speaking is at least three parts thinking. And thinking does not consist in staring at a blank sheet of paper and waiting for the spark from Heaven to fall. It is hard work. Ideas are valuable—valuable as the treasures discovered by the antiquarian ; but like these treasures they have to be dug out and sorted before they can be displayed to the public gaze.

It is outside my province to-day to talk about style, but I must say a little about language. A good speaker hits the happy mean between a style which is so colloquial as to be undignified and the other extreme of " talking like a book." My own opinion is that there should be much less difference than is commonly supposed between the language of an article and that of a lecture, because each should resemble the other more closely than it generally does. I mean that most writing is too pretentious and would-be " literary," whereas most speech is too slip-shod and clumsy. The all-important thing is to find always the exact word to express your thought, and to avoid on the one hand *clichés*

and slang expressions such as " sort of " and " terribly decent," and on the other hand pretentious verbiage such as " being somewhat inclined to differ " instead of saying " No." To speak quite simply and unaffectedly is extremely difficult, and needs practice and discipline. Good speech, like good writing, should be concise, easily understood, and agreeable—whereas too often it is needlessly verbose, difficult to follow, and irritating. It is perhaps even more desirable, for the general enjoyment of life, that these qualities should be present in speech than in writing, for, though one can generally refuse to read what is badly written, one is often obliged to listen to what is badly said. When I was in the Army I frequently heard lectures that were a disgrace to the lecturer and an insult to the audience, and many of them, I regret to say, were by staff officers—but of course that was a good many years ago, and all that is changed now. Some of those lectures were fortunately inaudible, though this is not a quality that one commonly looks for in a lecture. But those that could be heard were frequently futile, sometimes unintelligible, and always dull. The first requisite is of course a thorough knowledge of your subject ; granted that, half the battle is careful planning and preparation.

Is it best for a speaker to write out and read what he has to say, or to speak from notes, or to dispense even with notes, and simply talk ? Opinions differ widely about this ; but I am sure that the ability to speak without notes is a rare gift, and difficult to cultivate. Moreover, this kind of speaking, though it appears to be done on the spur of the moment, is, if it is effective, more often the result of assiduous preparation. Many speakers write down in full what they are going to say, and learn it by heart, in order to appear spontaneous. But I must say that from careful observation of what one might call " amateur " speakers, the best are undoubtedly those who do rely to some extent on script or notes. Careful planning of a speech is essential, and too often the speaker who gets astray from his plan loses all sense of logic, and very frequently all sense of time too. I recommend that anything that is to be said should, if time allows, be written down in full ; it can then, if you like, be reduced to notes—but either in its full form or in the form of notes it should be before you as you speak. If circumstances make this impossible, reduce your notes to the smallest possible proportions, commit them to memory, and rehearse your speech carefully, on time-table. The important thing about these notes, by the way, is that they should cover your transitions. Too often notes consist of just the things that one would remember anyhow—main headings, and so on. It is easy to remember the chief points that one means to talk about, but it is easy to forget what one was going to say about them ; and a speaker who gets hung up, you will notice, generally does so not because

he has forgotten his next point, but because he has made no provision for getting from one point to the next. It is such difficulties that your notes should provide against. I like to have the full script with me when lecturing, though I never read it throughout, or keep strictly to it in detail. But I have practised reading in such a way that my audience cannot usually detect whether I am reading or speaking. Most people seem to find this a difficult accomplishment, but I think it should not be, especially if you are accustomed to acting; and if you can learn to do it, it will save you a lot of time and trouble in preparation.

Whatever method you adopt, you must not appear to be reading, and you must ensure that what you say is clear to your audience. The two chief qualities required of a speaker are intelligibility and audibility. It is no use the audience being able to hear you if they cannot understand you; nor is it any use their being able to understand you if they cannot hear you. Now let us pass on to the actual business of speaking.

THE DELIVERY.

PRONUNCIATION.—The moment you begin to speak, you should try to sense your surroundings as much as possible; rooms and halls vary very much in the way in which they treat your voice. In a room where there is any echo, or metallic resonance, or in the open air, it is fatal to shout; if you do, the vowels will make such a noise that the consonants will not be heard at all. It is seldom necessary to speak very loud, and never necessary to shout; what is necessary is clear articulation of the consonants. An actor who articulates his consonants clearly can make a whisper heard all over a big theatre. The importance of consonants is obvious if you think about it. Vowels will look after themselves. It is easy enough to distinguish between "robot" and "rabbit," but very difficult to distinguish between "rabbit" and "rapid." Final consonants are important; a lot of unnecessary trouble may result from mistaking "he's in the *bath*" for "he's in the *bar*." A good way of practising clear articulation is to speak as if annoyed—"Don't—do—that." Only a small proportion of consonants are true consonants—many, such as m, n, ng, l, w, can be vocalized like vowels. Compare the first of the following passages, which contains only vocalizable consonants, with the second, in which the consonants are all explosive sounds that cannot be sustained:—

"Many a lonely man will wander here,
Thinking of home."

"Did Dad touch Bob and Ted?"

The secret of clear articulation of consonants is to keep the lips, tongue and teeth mobile. The secret of clear and accurate vowel

enunciation is to realize what is the position of the lips, tongue, and teeth for each vowel sound, and to keep these exact and distinct. To most educated people this comes naturally, but it is always necessary to be on the lookout for bad habits. The Oxford " Good-bahe," the Mayfair " Ha-d'you-doh," and the American " carnference," are really quite as inaccurate as the Cockney " Piper, lidy," or the Glasgow " Ha'e ye go' a bo'tle ? " I have helped people to cure themselves of that most ugly and insidious trick of " eow " for " ow," by pointing out that it is only a matter of keeping the tongue absolutely flat on the bottom of the the mouth.

We have not time to go at all fully into the matter of voice-production, but there are just two points that may save both you and your audiences from fatigue. The first is to speak on to the hard palate in the *front* of the roof of the mouth, which not only gives resonance to the voice, but also saves the more sensitive soft palate at the back of the mouth from becoming inflamed. The second is to breathe as deeply and as seldom as possible. A reserve of breath gives force and control, and constant breathing causes hoarseness. What is generally known as " dropping the voice " at the end of a sentence, so that the last few words are inaudible, is due, not to speaking these words on a lower note, but to deflating the lungs a moment too soon.

PITCH.—It is, of course, in the management of the pitch of your voice that most of your opportunity for effect lies. It is in this way that you secure emphasis and contrast, and above all, sustain interest. Most speakers use far too many downward inflexions. The voice should be kept on an upward inflexion except at a full stop—and very often then too, and a really full close should only be used when a definite effect of finishing is required before passing on to an entirely fresh point. Do not forget to begin on a low note if you want to work up to an effective climax, otherwise you will find yourself with nothing left to do but scream. The meaning of words and phrases, as well as the intention of the speaker, can be changed entirely by the inflexion of the voice. Think of all the different meanings that can be given to the simple phrase " You do " by the use of different inflexions. The more variation of pitch and the more inflexion you can use, the more interesting your speaking will sound ; in fact, the word " monotonous," which really means " speaking on one note," has come to mean " dull." On the other hand the over-use of inflexion, as in stories told to young children, is irritating. But somehow or other you have got to get this feeling of interest, this sense of force and importance, behind what you say, or your audience will not be interested. Even if what you say is really pretty dull, you can make an audience believe by your manner that it is

interesting—at all events it is usually some time before they find you out, and you may get away first! But they will never believe that it is interesting if it sounds dull. In fact, there is no doubt that what you say is not really so important as the way in which you say it—a regrettable fact, perhaps; but such is human nature.

PACE AND MICROPHONES.—Pace should vary continually. In the first place, it should vary according to the size of the building and audience; the larger these are, the more slowly you must go. Of course microphones are now in almost universal use in large buildings, and for outdoor gatherings. For indoor purposes—at all events for studio work—one should talk into a microphone more or less as in ordinary conversation, only very distinctly—as to an elderly, deaf, and rather stupid aunt, as they tell you at the B.B.C. Outdoors it is generally necessary to speak much louder. The microphone tends to flatten the voice, and it is advisable to use much more varied inflexion than in normal speech. Remember always to keep your head still when speaking into a microphone. It is always advisable to rehearse, because an electrician can do a great deal to modulate the microphone to your voice. There is really no reason why the average person who speaks well should not amplify well.

If you are speaking without amplification from a platform or stage, you should always go rather more slowly than you feel to be right. If you think a pause is necessary, make it a little longer; if a stress, a little more emphatic; if you are trying to go slowly, go a little more slowly. It has to be remembered that the audience never hears every word; many of the words they have to guess from those that they do hear: somebody sneezes or scrapes a chair, and a word is missed. You must allow time, by speaking slowly, for the word to be guessed from its context. It is particularly important to speak very slowly and clearly for the first few minutes, until your audience have accustomed themselves to your voice, and you have got used to your room, and have, as it were, " established contact " with your audience.

EMPHASIS.—Besides making all that you say audible, your object is to emphasize the most important points. There are many ways of securing emphasis, and as the whole effect of your speech depends on your success in emphasizing what is most important in it, it might be well to consider these.

Pitch, Volume and Speed.—Pitch is the commonest way. One instinctively raises the note on the word to be emphasized; also the volume may be changed. To say a word louder or more softly than the preceding words draws attention to it. A sentence that it to be emphasized may be said at a slower speed, and the words spaced out.

Repetition.—An obvious method of emphasis is repetition ; and so is a pause, generally before, and sometimes after, the word to be stressed.

Antithesis.—It is a great help to the clarity of your argument if constant use is made of antithesis, on both a large and a small scale. If you have to argue the pros and cons of anything, you can take either black and white, black and white alternately, or all the whites and then all the blacks, or all the blacks and then all the whites ; ending up, of course, in any case with the conclusion that proceeds logically from your treatment of them. Use your voice, too, to point the smaller antitheses, making the contrasts by alternate upward and downward inflexions.

Tension and Climax.—I have already pointed out the importance of climax in oratory. It is well to make more use of what is called the " periodic " form of sentence than one would in writing. This form of sentence is so constructed, by holding the main verb, that it does not make complete sense till you come right to the end of it. Burke used sentences that went on for a page and a half before he came to the main verb, and it was impossible to help listening. For though the subject-matter may be dull and the room stuffy, though the speaker is not yet at the end of a lengthy discourse, and even though the audience may not really *want* to know what he is going to say, yet there is something, some power—the same queer power, perhaps, that makes people sit up late to finish a novel or watch with breathless excitement a tight-rope walker near the end of his rope, though they would be bored if he stood still—there is, I say, some power that attracts, invites, nay more, compels, the listener to go on listening through sentence after sentence, until at last, with a sigh of satisfaction and relief, he is steered home to what is, after all, no more than the main verb. In addition to using this type of sentence, remember that it is doubly important so to arrange what you have to say as to ensure that creation of tension and expectancy that I have already indicated as desirable. It is said that in a play the audience should gradually realize what is going to happen, but should not know until quite near the end *how* it is going to happen. The same principle may be applied to a speech or lecture. The argument should unfold itself clearly, but it should not be clinched until the climax is reached ; and the climax should not be reached too early.

Manner.—Gesture is generally unpopular with any but the most practised speakers ; it is often said to be theatrical, and people think it is " absurd to wave one's arms about." So it is ; but gesture does not mean waving one's arms about. When gesture is properly used, you hardly notice it, though you feel its effect. Probably gesture that is learnt and practised is seldom effective, but if you feel a natural

desire to make use of your hands, fingers, shoulders, or eyebrows, by all means do so, though nobody would wish you to wave them about.

The attitude in which you stand to speak should be dignified and assured, without being pompous or overbearing. Try to avoid fidgeting; the audience are watching you closely, and every time you fidget about for no reason, they think your movement may have some meaning which it has not, and in a short time they will become too impatient to listen to you. It is best not to address yourself to individual members of the audience, but to speak to the back of the room, just above the heads of the back row. You thus give the impression to most of the audience that you are speaking to the people immediately behind them.

A great deal depends upon personality and manner. If you are nervous and uncomfortable, your audience will be nervous and uncomfortable too. If, on the other hand, you appear to be enjoying yourself, they will probably enjoy themselves also. An assured and easy manner is not difficult to cultivate, if you know exactly what you are going to say, and how you are going to say it, and if you are confident of your ability to make what you have to say intelligible and audible to your audience. And lastly, may I suggest that what is commonly called " charm of personality " is, as in writing, only achieved by those who are free from self-consciousness. It is paradoxically true that the speaker who appears to achieve most by his personal charm is the speaker who is least conscious of it. The audience are, or should be, more interested in the speech than in the speaker; and if he concentrates, not on doing himself credit, but on conveying what he has to say to his audience, then he has every chance of winning their sympathy and interest.

DISCUSSION

ADMIRAL SIR WILLIAM GOODENOUGH: In the course of his lecture, Mr. Crump remarked that the audience will take it for granted that a lecturer knows what he is going to talk about and that he is interested in it. I suggest that a lecturer should take it for granted that his audience is equally interested, though perhaps they have less knowledge. Do not take as an example the method of the late Lord Rayleigh, who before he started to give a lecture on a very important and scientific subject said, " Well, I don't suppose anybody will understand a word of what I am going to say " and then proceeded to give the lecture; rather follow the attitude of mind of Sir William Bragg and his methods. He is the most delightful exponent of scientific subjects that can be imagined. The other day he invited me to listen to a lecture that he was to give before the Royal Institution on the liberation of the electron. I said I should not understand a word of it, but he replied, " I am an optimist; by the time you have heard it perhaps you will "—and I did!

If the younger officers here to-day want to hear a professional lecture given with what, to my mind, is as near perfection as one can get, they should go to the demonstration of the Battle of Jutland at the Tactical School at Portsmouth, or at Greenwich, where it is equally good. Lord Morley, who was a great stylist, once

said " No one can write better than the man of action on his own subject," and there you will hear men of action speaking on their own subject and doing it quite admirably.

With regard to condensation, and being able, as the Lecturer has said, to say afterwards what a speaker has said about his subject, I cannot refrain from telling you this story. You know that President Coolidge of the United States of America was a very silent man. He used habitually to go to church on Sundays, and one day he was asked what the parson had preached about, and he said " Sin." " What," he was asked, " did he say about it ? " " Oh," was the reply, " he was against it ! "

I should like to emphasize very strongly that every word should be written beforehand. It is given to very few lecturers to be able to speak even from notes without that dreadful vice of repetition. Do not go on saying " As I have already said," and that sort of thing ; make your statement, emphasize it, and have done with it. I once heard four talks of a quarter of an hour each by Lord Lugard, Sir Francis Younghusband, Sir Halford Mackinder, and Dr. Worrlie on Asia, Africa and the Arctic. They spoke brilliantly and did not waste a word ; that is an example of how you can get within a small compass a great deal of what is good.

With regard to preparation, I would recommend you to read that very entertaining chapter in Sir Austen Chamberlain's recently published book on how different people prepare their speeches. A very distinguished politician, or perhaps I should say statesman, once told me that it was his practice to spend three days over a big speech, to write every word, and to shut himself up and learn it by heart, and then he was able to deliver it. Whether it was delivered with an entire absence of self-consciousness or not I do not know.

COMMANDER CARLYON BELLAIRS : Speaking with the recollection of twenty-one years in Parliament, I could wish that members of the new Parliament might read this valuable and interesting lecture ; but even so they would miss the manner of its delivery, which interested and charmed us all.

The Lecturer said we had to devote our attention to a definite aim and to the preparation of facts. Well, politicians do devote themselves to a definite aim, but the aim is that their side shall win. They do devote themselves to the preparation of facts, but in the course of the preparation of those facts, the facts often become distorted. I dare say you have all heard the definition of a candidate as a man who is " asked to stand, who wishes to sit, and who has to lie ! "

Perhaps for the purpose of a lecture, but still more for the purpose of a speech, we might remember the advice of Archbishop Temple to an aspiring clergyman ; he said, " Think out a good beginning, think out a good ending, and bring the two as near together as you possibly can." In a lecture I take it we have to think of a content and establish our thesis, but apart from that I think we can bear Archbishop Temple's advice in mind. A great statesman and a great philosopher—Halifax, once said, " It is the hardest thing in the world to give liberty to our ideas and yet give them due discipline."

The Lecturer expressed strong disapproval of speaking without notes, and I think that applies in 999 cases out of 1,000 ; but I knew two men in the House of Commons who never used notes : the late Mr. William Graham and the late Mr. Bonar Law. I once asked Bonar Law how on earth he managed, and whether he ever forgot something that he wanted to say. He replied, " Often, but I have a thread running through the whole of my speech and I never allow myself to lose touch with that thread, and in that way I can carry on."

As regards nervousness, I should like to mention that in the early days of the 1906 Parliament I asked Lloyd George whether he ever felt nervous : I have noticed that many of the best speakers are nervous speakers. Lloyd George said he was so nervous when he was going to make a big speech that he was almost sick before he made it. I think that may encourage others to aspire and to keep on until they succeed. After all, Balfour when he entered Parliament was one of the worst speakers, but he turned out to be one of the most convincing and best of all.

A MEMBER : I should like to ask whether there is any hope for a lecturer or a speaker who has two sets of false dentures ?

CAPTAIN E. ALTHAM, R.N. : A subject which was touched on only briefly by the Lecturer, but to which Commander Bellairs also alluded, is assurance, or as I should prefer to call it, " stage fright." I know that many naval officers, at any rate, when they are first asked to make a speech or give a lecture suffer badly from stage fright. I think the Chairman will agree with me that those of us who have had the good fortune to have had a gunnery training, perhaps suffer from it less than others. From our earliest days we had to stand out and give details of the manual exercise by numbers, and such methods gave us confidence. But I remember a case, at the War College, of quite a senior officer (who had not been a Gunnery Lieutenant !) who was asked to give a lecture, and he said he did not think an officer of his age and standing should be inflicted with the mental torture of having to do such a thing.

I believe this defect is being got over nowadays by that practice which makes perfect, but I would ask the Lecturer to bear it in mind when addressing a Service audience ; possibly he could help those who suffer from it to overcome it, even where it does arise from inherent and otherwise becoming modesty.

THE CHAIRMAN.

It is not altogether an enviable task to act as Chairman to a lecturer who is going to tell us how to speak, because he can use your opening remarks as an " awful warning " and your concluding remarks as proof that you have not had the intelligence to take advantage of his lecture !

The subject with which our Lecturer has dealt this afternoon is an important one, and it is increasingly important in these days of widespread education. No Service to-day can afford to be a " silent Service," either internally in its own domestic affairs or externally in its relations with other departments of the State.

I must answer the pathetic query of the gentleman who mentioned dentures by saying that in some ways they are an advantage, because they provide you with an automatic hard palate !

I am sure you wish to accord a very hearty vote of thanks to the Lecturer for a really helpful address. I can say " helpful " from experience, because I have heard him before, and although I shall never be a good speaker I am sure he has made me a little less painful to listen to !

The customary votes of thanks to the Lecturer and Chairman were carried by acclamation.

THE FIFTH BATTLE SQUADRON AT JUTLAND

By Vice-Admiral A. Craig Waller, C.B.

MUCH ink has flown over paper in the endeavour to present a true account of the Battle of Jutland or to show the mistakes that were made on both sides. Many armchair strategists and tacticians armed with the reports, plans, and descriptions of the battle, official and otherwise, have demonstrated to their own satisfaction that responsible officers made mistakes which should not have been made, and that if the proper action had been taken the whole German Fleet would have been annihilated. Notwithstanding these critics, it is now generally recognized that Sir David Beatty handled his force with great ability and high strategic and tactical skill, and that Sir John Jellicoe's deployment under great difficulties was masterly and could not have been improved on.

The 5th Battle Squadron has probably come in for more criticism than any other unit and the statement in the *R.U.S.I. Journal* of May, 1935, page 456, in the course of a review of Mr. Cruttwell's book on the War, that " it (5th B.S.) was unfortunately handled with singularly little enterprise " induces me, as Flag Captain in the " Barham " to the late Sir H. Evan Thomas, to endeavour to clear up some misconceptions as to the part played by the 5th B.S., and to show that such criticism is ill-founded and unwarranted. I do not propose to make any excuses for the handling of the Squadron or for its conduct or efficiency throughout the long period during which it was engaged with the enemy, as I cannot recall any occasion on which under the conditions prevailing, and with the information available at the time, on which to base a decision that the best course was not taken.

The 5th Battle Squadron was formed in the autumn of 1915 under the command of Rear-Admiral H. Evan Thomas, and when completed consisted of the five battleships of the " Queen Elizabeth " class—" Barham " (Flag), " Valiant," " Warspite," " Malaya," and " Queen Elizabeth "—the last-named joining the Squadron on her return from the Dardanelles. They are still powerful and effective units of our fleet and it is unnecessary to describe their characteristics, but they had not then been fitted with bulges and were all capable of attaining their full 25 knots speed. The Squadron normally acted as a fast wing of the Battle Fleet, but in May, 1916, it was sent from Scapa to Rosyth

to reinforce the Battle Cruiser Force, during the absence of the 3rd Battle Cruiser Squadron at Scapa.

The whole Force, consisting of the " Lion " (Flag), 1st and 2nd Battle Cruiser Squadrons—less " Australia " (refitting), 5th Battle Squadron—less " Queen Elizabeth " (refitting), 1st, 2nd, and 3rd Cruiser Squadrons, 1st, 13th, and part of the 9th and 1st Destroyer Flotillas, and the " Engadine "—seaplane carrier, left Rosyth between 9 and 10 p.m. on the 30th May under the command of Vice-Admiral Sir David Beatty. The 5th B.S. was stationed 5 miles astern of the " Lion," and was screened by the " Fearless " and 1st Destroyer Flotilla. The course S. 81 E., speed of advance 18 knots, brought the force to the approximate 2 p.m. position ordered by the C.-in-C.—56°.40 N.; 56°.0 E., at 2.15 p.m., when, in accordance with plan, course was altered to N. by E. to get in visual touch with the Grand Fleet. The 5th B.S. had previously been stationed N.N.W. 5 miles from the " Lion," and that alteration of course brought the 1st B.C.S. nearly astern. At the same time the Rear-Admiral 5th B.S. was directed to look out for the advance cruisers of the Grand Fleet.

At 2.20 the " Galatea," then about 22 miles East of the " Barham," reported by wireless " two cruisers probably hostile E.S.E.," and at 2.30 reported that they were stopped. At 2.32, the course of the B.C.F. was altered by flag signal to S.S.E. and speed to 22 knots. The " Tiger," since dawn, had been ordered to repeat all signals between the Admiral and the 5th B.S. and had done so by searchlight; but this course and speed signal was not so repeated until five minutes after the " Lion " had turned, and it is evident that the " Tiger " doubted if it applied to the 5th B.S. The flags could not be distinguished in the " Barham." As soon as the signal was passed, the 5th B.S. turned to S.S.E. and, gradually increasing to 24½ knots and, by cutting off corners, managed to pick up some of the lost ground, so that it was able to open fire on the rear ships of the German Battle Cruiser Squadron twenty minutes after the engagement had commenced, having previously driven off two light cruisers.

A great deal has been made of the alleged failure of the 5th B.S. to turn at the same time as the " Lion " (2.32) to S.S.E. In the Admiralty *Narrative* (page 107, note 3) it is suggested that the " Barham " might be expected to keep station 5 miles from " Lion " without knowledge of the latter's course or speed, whilst in the same note it is to be gathered that the enemy was in sight and therefore the 5th B.S. should have closed " Lion " without further orders—presumably before the latter turned. As a matter of fact, the only enemy reported before the turn was " two cruisers probably hostile " located about 30 miles from " Barham " (which in fact turned out to be destroyers), and there was

no indication of any heavy enemy ships until the " Nottingham's " report at 3.24—three-quarters of an hour after the 5th B.S. had turned to S.S.E. It is probable and reasonable to suppose that up to this time, and even later, the Vice-Admiral of the B.C.F. did not consider the support of the 5th B.S. necessary, and that it was sufficient for the moment to keep it within visual hail. In fact, after the signal to look out for the Grand Fleet cruisers at 2.15, the Rear-Admiral of the 5th B.S. received no special directions until 3.34 when he was ordered to proceed East at 25 knots and assume complete readiness for action, at the same time being informed that " enemy is in sight."

At the time when the Battle Cruisers turned to S.S.E. (2.32) we were keeping, as ordered, a sharp look-out for the Grand Fleet advanced cruisers, and it was calculated that at 2.30 they would be only 15 to 20 miles off. As a matter of fact the Grand Fleet was nearly 20 miles astern of its intended position, but if visual communication had been established between the two forces at this time the results might have been decisive.

The effect of the opening of fire by the 5th B.S. on the German battle cruisers was immediate and important. The Vice-Admiral B.C.F. in his despatch states: " At 4.8 p.m. the 5th B.S. came into action at a range of 20,000 yards. The enemy's fire now seemed to slacken "; whilst the German C.-in-C. in his report remarks " A new squadron . . . of the " Queen Elizabeth " class appeared from a N.W.ly direction and took part in the action. . . . This rendered the position of our cruisers critical. The new opponent fired with remarkable rapidity and accuracy. . . . The cruisers of the 2nd Scouting Group with the remainder of the flotillas were compelled by the " Queen Elizabeths " to haul off to the East, and therefore . . . had not been able to reach their position at the head of the armoured (battle) cruisers." It may be noted that owing to this, most of the German 2nd Flotilla were unable to take part in the destroyer attack which might otherwise have had more serious results.

Von Hase (gunnery officer of the " Derfflinger ") states: " Behind the battle cruiser line appeared four big ships. We soon identified them as of the " Queen Elizabeth " class. . . . They engaged at portentous ranges. We were now being subjected to heavy fire and so we steered a zig-zag course." From 4.11 to 4.53 the 5th B.S. engaged the rear ships of the German B.C.S. at ranges between 20,000 and 16,000 yards, and although the visibility was poor from our point of view, German reports show that considerable damage was inflicted in the " Von der Tann " and " Moltke," three of the turrets of the former being put out of action whilst a large amount of water got into her from a shell hole aft. The enemy

was soon forced to divert some of their fire from our battle cruisers, and at 4.23 the " Barham " was hit on the waterline, but not appreciably damaged. Shortly after this, the explosion of the " Queen Mary " was seen, and it was thought in the " Barham " that it was possibly due to a mine, so course was altered to port to pass clear of the position. This should have closed the range, but at the same time the enemy turned away considerably to avoid the attack of our destroyers, and the range opened again to 20,000 yds. (4.40 p.m.). We were considerably handicapped by the light conditions, especially in spotting, but the service of the guns and fire control system was working as if at target practice, and a high rate of fire was maintained whenever the conditions justified it.

Steaming at over 24 knots we were not able to close up appreciably on our battle cruisers until the latter turned to the Northward at 4.45, on sighting the German Battle Fleet, which had just previously been made out and reported by the " Southampton." We were soon approaching the " Lion " at a combined speed of 48 knots, and altered course slightly to starboard to pass our battle cruisers on the disengaged side. The " Lion " had the signal flying " 5th B.S. alter course in succession 16 points to starboard," easily visible to the naked eye as we passed close to her. Shortly afterwards the signal was hauled down, and the " Barham's " helm put over. The alleged delay by the 5th B.S. in making this turn is imaginary : the time taken to turn and the great loss of speed during such a turn is quite sufficient to account for the 5th B.S. being 3 miles astern of the battle cruisers when steadied on the Northerly course. It is somewhat curious that the Rear-Admiral 5th B.S. should have been criticized for unduly delaying the turn and thus unnecessarily risking his squadron, and also by the R.U.S.I. reviewer for want of enterprise. It would certainly have been enterprising to delay the turn, but the Rear-Admiral considered it essential to carry out the order as signalled and also to remain in effective support of our battle cruisers. If we had not been ordered to turn to starboard, we would have turned to port in order to come into the wake of our battle cruisers, be in the best position to engage the German battle cruisers effectively, and give the maximum support to Sir David Beatty whose battle cruisers were now reduced to four against the enemy's fire. We had not, however, at that time sighted the enemy battle fleet.

Of this phase of the action the German C.-in-C. remarks, " The British battle cruisers turned in succession to N.W. The " Queen Elizabeths " followed in their wake and thus covered the cruisers which had suffered severely." The Vice-Admiral B.C.F. in his despatch states : " The 5th B.S. were now closing on an opposite course. The position of

the enemy battle fleet was communicated to them, and I ordered them to alter course 16 points. Led by Rear-Admiral H. Evan Thomas in the " Barham " this squadron supported us brilliantly and effectively," whilst the Rear-Admiral 2nd B.C.S. remarks: " Here the 5th B.S. played its part nobly and as elsewhere during the action proved itself a tower of strength."

During the turn we were subjected to a heavy concentrated fire from the leading (3rd) enemy battle squadron: the " Malaya," our rear ship, especially so. Shortly after turning, the " Barham " was hit by a 12-in. shell which, entering the starboard forward 6-in. glacis, burst on the main deck and was responsible for most of our casualties. Pieces reached the lower conning tower and mortally wounded the 2nd Navigating Lieutenant who was keeping the navigation record, and the roof of the 6-in. magazine was holed. The forward hydraulic engine was put out of action, and 6-in cartridges in. S.2 casmate were ignited, whilst the auxiliary wireless was wrecked. As the main wireless was disabled by another shell about the same time, we were without wireless communication during the approach to the Grand Fleet."

After steadying, the " Barham " and " Valiant " engaged the enemy battle cruisers, and the " Warspite " and " Malaya " the leading ships of his battle fleet. During the run North the visibility, from our point of view, was even worse than before, but the 5th B.S. kept the German battle cruisers at such a range that for half an hour they were unable to engage our battle cruisers, whilst we inflicted considerable damage on the enemy. The " Derfflinger," it appears, was hit three times, and the " Lützow " had her wireless—both main and auxiliary—disabled, whilst the " Seydlitz " suffered very severely, especially her main armament. The leading battle ships of the German 3rd Squadron also received several hits.

The Rear-Admiral 5th B.S. concentrated mainly on holding the German battle cruisers in check, and ten minutes after turning, directed the fire of the whole squadron on them. It appears from the account of Von Hase that after 5.16 the " Derfflinger " was firing at the " Valiant," but although the German battle cruiser suffered " bad hits," she failed to hit the " Valiant." Hipper had been directed to " follow the battle cruisers," but he was unable, even at his utmost speed, to keep up to ours, and Von Hase states that " after the gradual disappearance of the battle cruisers we were still faced with the four powerful ships of the 5th Battle Squadron " and that this squadron " at one time or another came under the fire of at least nine German ships—five battle cruisers and four or five battleships." He states further that " This part of the action, fought against a numerically

inferior but more powerfully armed enemy, who kept us under fire at ranges at which we were helpless, was highly depressing, nerve-racking and exasperating—our only means of defence was to leave the line for a short time when we saw that the enemy had our range—as this manœuvre was imperceptible to the enemy, we extricated ourselves at regular intervals from the hail of fire."

From 5.30, the " Lion " gradually hauled round to the Eastward, the 5th B.S. following at full speed about 3 miles astern, and at 6.6. the " Marlborough " was sighted on our port-bow heading E.S.E. The Rear-Admiral 5th B.S. concluded that she was at the head of the battle line and that he would be able to form ahead of her. Shortly afterwards, however, other battleships of the Grand Fleet came into view and it was seen that the " Marlborough's " division was on the starboard wing of the fleet, which was deploying on the port wing column, so that the 5th B.S. could not reach the head of the battle line without masking the fire of the fleet for a considerable period. The R.A., after consulting me, decided to take up the alternative Battle Order station for the 5th B.S. at the rear end of the line. The *R.U.S.I. Journal* review, referring to a suggestion in Mr. Crutwell's book that at this juncture the C.-in-C. might have organized a " harassing movement on the enemy's Western flank " states that " There was nothing to prevent it (5th B.S.) harassing the enemy, but unfortunately it was handled with singularly little enterprise considering the superior speed of its ships, although they fought most gallantly whenever they were in action." It is to be presumed that the suggestion in the review is that the R.A. 5th B.S. should not have taken station in the battle line, but should have steered to the South Westward. A study of the plans of the battle will show that such a course would have quickly placed the 5th B.S. in an isolated position with every probability of getting completely out of touch with the Grand Fleet and of being cut off. It is, on the other hand, obvious that if the subsequent course of the battle had made it necessary or desirable to reverse the order of our battle line and bring the enemy on our port hand, the 5th B.S. would have been advantageously placed at the head of the line. I cannot conceive that, under the circumstances, any other course than that taken would have been advantageous or proper. As to the handling of the Squadron at this juncture, instant decision and immediate action was required to bring it, steaming at 25 knots, into position astern of the 1st Battle Squadron, necessitating two 8-point turns in line ahead and reduction to 10 knots. This difficult manœuvre, hampered by a large number of light craft on the western flank of our battle fleet, was successfuly effected under heavy fire. During it, unfortunately, the " Warspite's " helm jambed and she came under a heavy concentrated

fire whilst making an enforced turn of 32 points, receiving considerable damage. She was unable to take up her station in the line and lost touch with the fleet. Two hours later, on reporting that she could steam 16 knots and asking for the position of the fleet, the Rear-Admiral decided to order her to return to Rosyth, it being then nearly dark.

Just as we were about to turn to take station in the line, the "Defence" and "Warrior" passed close to us on the engaged side steaming at full speed to the Westward. When abeam, the "Defence" was struck forward and aft almost simultaneously by two salvoes and practically disintegrated—an awe-inspiring sight. The "Warrior" also was heavily hit and might have suffered the same fate but for the involuntary shielding of her by the "Warspite" during her forced rotary turn.

The remainder of the action, during which the 5th B.S. formed the rear or starboard wing of the battle line, calls for little individual comment. The German battleships of the 3rd Squadron were engaged by our 1st and 5th B.S.s up to the time of the turn away by the enemy at 6.35, and were re-engaged on reappearing at 7.2 until they disappeared behind a smoke screen about 7.23 and were covered by a destroyer attack which we assisted to drive off with our 6-in. batteries. Most of the torpedoes passed through the lines of the 1st and 5th B.S., but were avoided. The battle line was considerably bunched at the western end due partly to the "Marlborough" having been torpedoed, and large alterations of speed and considerable helm were required to maintain station and keep the line of fire clear.

The study of the various phases of the battle and the handling of the forces engaged is intensely interesting and instructive, but in criticising the actions of responsible commanders of units it is necessary to visualize clearly the conditions under which they had to make decisions and the degree of knowledge of the enemy's position, force, disposition, and movements available to them at the time. The 5th B.S. had always acted as the fast division of the battle fleet, stationed ahead when approaching the enemy and falling back to one wing when action developed. It was now in the strange position of being the slow division of the B.C.F. stationed on the far side from the probable enemy approach. During the action the Rear-Admiral 5th B.S. was to a great extent left free to handle his squadron to the best advantage in support of our battle cruisers, but there was in fact little choice but to follow at the best speed in their wake.

During the whole battle, the four surviving ships of the 1st and 2nd Battle Cruiser Squadrons (including the "Lion") fired 1,279 rounds from their main armament, and the four ships of the 5th B.S. 1,099

rounds. The battle cruisers were hit 28 times by heavy shell, the 5th B.S. ships 26 times. The casualties were considerably greater in the battle cruisers due, probably, to their inferior protection, viz., 304 killed and wounded as compared with 190 in the 5th B.S. It is curious that neither the " New Zealand " nor the " Valiant " were hit. The Germans evidently had a wholesome respect for the 5th B.S. and were considerably hampered by it. In the German official diagrams of eight important phases of the battle, the 5th B.S. is the only one of our squadrons which appears in all of the first seven diagrams (the eighth only indicates our fleet in a general way).

It is essential to keep in mind that the conditions of light and visibility during the run to the South when engaging the German battle cruisers, and during the run to the North engaging both battle cruisers and battleships, were extremely difficult for us, though excellent for the enemy, as is evident from German reports. The results obtained by our ships under such a handicap must reflect great credit on the training and efficiency of the gunnery staff of our ships. The conditions were equally difficult for our battle cruisers, but were unavoidable if the enemy was to be brought to action, and of this there was never any doubt in the mind of Sir David Beatty. I am convinced that if the conditions of light and wind had been reversed our battle cruisers would have remained intact and the German " 1st Scouting Group " would, if it had ever rejoined its battle fleet, done so in a very crippled condition —my opinion is based not only on the experience of the battle, but as a result of having taken a responsible part in the exhaustive tests of the Director Firing system before the War. The individual system of laying the guns, which obtained in the German Fleet at the time of Jutland, would have been absolutely ineffective in the conditions of visibility under which we had to engage. This was clearly demonstrated when action was joined with our battle fleet and the light and visibility were against the Germans, who failed to make a single hit even at comparatively close range.

It is necessary to refer to the criticism of ships of the 5th B.S. during the night following the battle, which in its severest form is contained in the *R.U.S.I. Journal* review of Mr. Crutwell's book, viz., " The history emphasizes the amazing neglect of the rear battleships of our line, the " Valiant " and " Malaya," to report sighting the High Sea Fleet breaking through to the Eastward after dusk, a tragedy which more than anything else deprived us of the fruits of Jutland had the battle been resumed at daylight." This is an absurd exaggeration of facts and the inference is at least extremely doubtful. The " Valiant " and " Malaya " were not the rear battleships of our line. The 1st

Division of the 1st B.S. (due to the "Marlborough's" speed being reduced) was astern and to the Eastward of the 5th B.S. and all the ships of that division observed the night attacks.

The "Malaya's" observation at 11.40 p.m., during the action between the German 1st B.S. and our 4th Destroyer Flotilla, placed "at least one" enemy battleship some distance to the North Westward "steering the same way as ours." The "Valiant" during the same action "surmised from the evidence" that two enemy cruisers were steering to the Eastward at high speed, but this, if correct, must have been a passing phase of the action and not a true indication of the course and speed of the German Fleet. It is certainly doubtful whether the various observations of enemy ships made by ships of our battle fleet ought to have been reported to the C.-in-C. I was on the bridge all night with my Admiral, and we came to the conclusion that the situation was known to the C.-in-C. and that the attacks were according to plan. A stream of wireless reports from ships in company with the C.-in-C. seemed superfluous and uncalled for. The unnecessary use of wireless was severely discouraged as being likely to disclose the position of our fleet to the enemy. The same reasoning probably influenced the "Marlborough's" division. This may have been an error in judgment but cannot be termed "amazing neglect." In any case the impression in the 5th B.S. was that the enemy were following astern of our fleet and that we were in the best position to resume action at daylight. It is very doubtful whether, if the C.-in-C. had got the reports from the "Malaya" and "Valiant," he would have been in a position to conclude definitely that the enemy were making for Horns Riff—the "Malaya's" observation would have tended to indicate that they were steering South—and, if so, whether he would have considered it justifiable to alter the course of the fleet before daylight. If he had done so, the fleet would have found itself in a fog much heavier than existed to the Westward where the visibility from the "Iron Duke" at daylight was 3 to 4 miles. Near the Horns Riff, the weather at daybreak, according to the German C.-in-C.'s report, was so thick that one could hardly see the length of a squadron. Under such conditions it would have been exceedingly difficult to form and maintain battle line, much less to locate and engage the enemy to advantage. The "fruits of Jutland" would have been hard to gather and difficult to digest.

SIR ROBERT ARBUTHNOT AT JUTLAND

By Commander R. Grenfell, R.N.

DURING the Battle of Jutland, at 6.25 p.m. on 31st May, 1916, H.M.S. " Defence," flagship of the 1st Cruiser Squadron, came under a heavy enemy fire and blew up with the loss of all hands. The present writer, who happened to be watching her at the time, saw her almost hidden by shell splashes ; then from somewhere in the ship appeared a flame which rapidly ran along from one end of her to the other and, increasing enormously in volume, flickered up into the sky to a height of five or six hundred feet. Among the nine hundred men who went to eternity at that moment was Rear-Admiral Sir Robert Arbuthnot, the Admiral Commanding the Squadron.

When the Grand Fleet had returned to harbour the many stirring events of the action were, naturally, discussed ; among them the loss of the " Defence " and the serious damage to the " Warrior " which had been following her. The evidence of how these ships came to be in such a perilous position was necessarily very incomplete. The low visibility which was such a notable feature of the battle left the German movements during a large part of it shrouded in almost complete obscurity ; for the same reason those of several of the British units were none too clear. So far as the 1st Cruiser Squadron was concerned, there was no one to explain the reasons for its movements due to the simple fact that there was not a single survivor from the flagship to tell the tale. The opinion which came to be generally accepted in the Fleet, however, was that the loss of the " Defence " was chiefly brought about by the reckless impetuosity with which Sir Robert had hurled his ships against superior forces. This conclusion was based on three main arguments :—firstly, Sir Robert had been seen steering at high speed in the direction of the enemy ; secondly, that so occupied was he in his dash towards the enemy that he crossed close across the bows and got in the way of the British battle cruisers who were approaching from his starboard side, forcing them off their course ; and, thirdly, that Sir Robert had been heard to express very fiery views on previous occasions whan a possible fleet action was under discussion.

The popular verdict expressed at the time about any incident of warfare frequently remains unchallenged until someone takes the trouble to make a critical study of the facts, which may not have been fully

known or appreciated hitherto. Contemporary opinion about Sir Robert's action certainly remains substantially unaltered. But the object of this article is to enquire whether it is right or wrong.

In the first place, what are the facts as they are now known? The Grand Fleet was steaming southward towards the reported position of the enemy, and the ships of the 1st Cruiser Squadron were spread ahead of the battle fleet as part of the cruiser screen. "Defence," "Duke of Edinburgh," and "Black Prince" were each six miles apart, while "Warrior" was following astern of "Defence."

The duty of the cruiser screen was to cover the front of the battle-fleet so as to prevent it being surprised and, as the two fleets approached, to gain contact with the enemy and supply the Commander-in-Chief with information as to their position, strength, and disposition, so that he might deploy into action in the most favourable way.

As the Grand Fleet drew near the estimated position of the enemy, its advanced forces began to make contact with units of the Battle Cruiser Force which were steaming northward in retreat from the High Seas Fleet. The two British fleets were approaching each other approximately end on, so that the situation was developing very rapidly and incidents followed each other in quick succession. To Sir Robert the first signs of the pending meeting were, doubtless, the gun flashes of the British battle cruisers away to starboard, although the ships themselves were not yet visible. A few minutes later, however, as he steamed on at full speed, he sighted, about four points on his starboard bow, four German light cruisers. These were the 2nd Scouting Group, consisting of the "Frankfurt," "Pillau," "Elbing," and "Wiesbaden." Sir Robert immediately opened fire and, after a few salvos, turned towards them to close the range.

Meanwhile, several miles to the eastward, the British 3rd Battle Cruiser Squadron under Rear Admiral Hood had also sighted and opened fire on these same light cruisers. Hood's battle cruisers were not in sight from the "Defence" and, owing to misty conditions, were invisible from the German ships which were forming their targets. Under this crossfire from "Defence" and "Warrior" to the northward and an unseen enemy to the eastward, the German light cruisers retired on their heavy ships under a smoke screen—all but the "Wiesbaden" who was lying stopped, her engines out of action and unable to retreat from the heavy fire which was overwhelming her.

When the German squadron disappeared, Sir Robert Arbuthnot was left with the disabled "Wiesbaden" as the only enemy in sight.

She lay right in his path as he headed in the direction where the rest of the enemy squadron had last been seen.

About seven miles away on his starboard bow, but as yet out of sight, the German battle cruisers were steering a converging course to that of Sir Robert's ships. They had at this time just come under fire from Admiral Beatty's battle cruisers who had closed in to head them off from sighting the approaching Grand Fleet. In the peculiar visibility conditions that obtained that day, Beatty's ships were invisible from the German side. The latter could therefore make no effective reply and began to suffer severely. On top of this was suddenly added the totally unexpected menace of heavy shell fire from unseen ships to the eastward. This was Hood's 3rd Battle Cruiser Squadron firing at the 2nd Scouting Group. Under fire from an invisible enemy from the northward and seeing evidence of heavy ships to the eastward, Hipper turned his ships about twelve points to starboard and retired on the High Seas Fleet. This retiring movement could not however be a long one. By the time the German battle cruisers were fairly round, the head of their advancing battle fleet was no more than a mile or two away and it was necessary to begin the turn back if the battle cruisers were to retain their position ahead of their battlefleet. So Hipper swung round again and, presently, his battle cruisers were pointing N.N.E. and more or less straight towards the oncoming " Defence " and " Warrior." The two squadrons were then approaching each other at a relative speed of over 40 knots ; and close astern of the German battle cruisers were the leading battleships of the High Seas Fleet.

Sir Robert Arbuthnot's S.S.W.ly course towards the " Wiesbaden " was taking him across the bows of the approaching British battle cruisers, which were coming in from his starboard side. Either so intent was Sir Robert on his action with the " Wiesbaden " that he paid insufficient attention to the approach of the battle cruisers, or he misjudged their line of approach ; for, as the two squadrons drew near, our battle cruisers had to alter course to avoid the 1st Cruiser Squadron.

Hardly were " Defence " and " Warrior " clear of our battle cruisers than out of the mist ahead and at comparatively close range burst into view the German battle cruisers and their leading battleships. As soon as he realized his danger, Sir Robert turned away to starboard. But it was too late. " Defence " and " Warrior " came under such a devastating fire that the " Defence " blew up and the " Warrior " only got away with great difficulty and so badly damaged that she afterwards foundered.

We are now in a position to examine more competently the accusation against Sir Robert Arbuthnot of rushing with reckless impetuosity against vastly superior forces. This can best be done by asking when and in what respect his actions were wrong.

Let us return to the situation when he was just entering the battle area and had got his first glimpse of the enemy on sighting the German 2nd Scouting Group. He opened fire, turned towards them and steered to close the range until the German squadron retired under smoke, leaving behind the disabled "Wiesbaden." The situation then before Sir Robert was this: behind him was the advancing Grand Fleet; ahead of him was the "Wiesbaden," the only enemy he could see; the remaining ships of the German Light Cruiser Squadron had just turned away from him and disappeared from sight. The day was misty and the visibility low. He had no certain knowledge where any other German forces were to be found. His duty, it will be remembered, was to discover the presence of the German heavy ships for the information of his own Commander-in-Chief. What was he to do? The only enemy he had so far seen had been ahead of him in the direction he was now steering; and the majority of that enemy had retired away from him. If he wanted to discover the whereabouts of other enemy forces, where if not ahead of him had he any reason to look? He held his course and suddenly ran into the German battle cruisers and leading battleships who were advancing upon him through a curtain of low visibility at a very high relative speed.

What else could Sir Robert have done? There were two main courses of action open to him. He might have retired on the Grand Fleet, but this was clearly inconceivable and we need not discuss it. Alternatively, instead of steering towards the position where the enemy was last seen and where he had left behind one disabled ship as a leading mark, he might have turned off either to port or to starboard. There was no possible reason to think that the enemy was more likely to be found to port or to starboard than right ahead, and every reason to think the reverse. Had Sir Robert turned off, and had his action been questioned later, it would have been very difficult to justify it, and would have laid him open to the charge of turning away from possible but undisclosed dangers before any such dangers were actually apparent. In fact the only possible conclusion is that if he was to perform his duty as a cruiser Admiral, to discover and report the enemy, the only direction in which he could have led his squadron was that which he took—straight on.

What of the suggestion that his forcing the battle cruisers off their course is evidence of recklessness? If it is, it is worth noting that

much the same thing happened to two other units that day. Very soon after this actual incident, the battle cruisers themselves forced the head of the Grand Fleet off its course just after it had been deployed. Again, the 1st Light Cruiser Squadron, on joining up with the Grand Fleet got so mixed up with the battlefleet that it had to pass between the columns on to the disengaged side. The truth is, that at high speed at sea it is not by any means difficult to misjudge a situation even in peace time—in action, it is only too easy.

And what of the expressions of desperate resolve which Sir Robert is said to have voiced previously? What of them indeed? Since when has it been a heresy for a commander to preach an offensive policy in battle? And, if Sir Robert's expressed intentions were on the headlong side, need one assume that his deeds would necessarily match his words and that in action he would throw all discretion to the winds? Men wishing to urge a forward policy on others are apt to exaggerate their case. It is nothing but the purest conjecture that Sir Robert allowed the ardour of his fighting spirit to outrun his judgment in battle. Why, then, should we have been so ungenerous as to deny him the benefit of the doubt when he did not survive to answer for himself? Far from having been rashly impetuous in action, he only did his obvious duty in the position in which he found himself. The fact that in so doing he lost his ship and his life makes no difference whatever to the correctness of his action. Battles cannot be fought without losses, and because a ship is lost in action it does not mean that she has done badly. On the contrary, those who are foremost in the fight commonly receive the heaviest blows.

Sir Robert Arbuthnot died doing his duty in battle. No man can do more and, far from criticising him, should we not honour him for having maintained the highest traditions of the Service in a way that Nelson himself would surely have acclaimed?

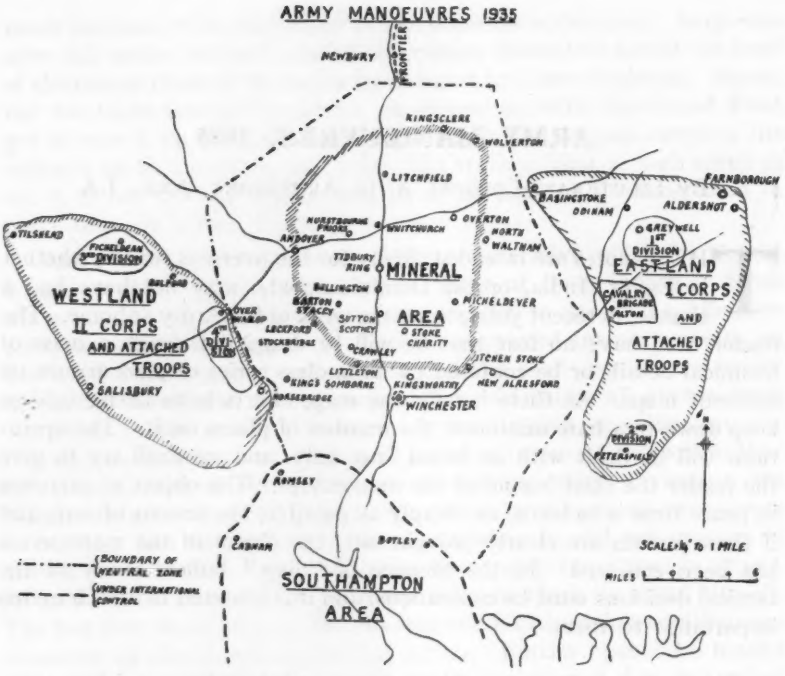
ARMY MANŒUVRES, 1935

By Lieutenant-Colonel A. G. Armstrong, *p.s.c.*, I.A.

THESE notes are intended chiefly for the overseas reader, whether in Egypt, India, or the Dominions, who may not have had a chance, in recent years, to see the work of the Army at home. The reader need have no fear that he will be dragged through a mass of technical details or be confused by an endless series of place-names on different maps. As there is only one map, efforts have been made to keep down to a bare minimum the number of places on it. The operations will be dealt with on broad lines only, and we shall try to give the reader the chief lessons of the manœuvres. The object of exercises in peace time is to learn, as cheaply as possible, the lessons of war, and if these lessons are clearly brought out, the object of the manœuvres has been achieved. In the absence of "live" bullets many of the tactical decisions must be contentious, and it is unsound to attach undue importance to them.

These exercises were specially important for three main reasons; firstly, because no big manœuvres had been held since 1925; secondly, because an opportunity was presented of trying out on a large scale those units which were in possession of full mechanized equipment; and thirdly, because the strained international situation directs urgent attention to the state of efficiency of all our armed forces.

The scheme for the operations was set by the War Office, and Field-Marshal Sir Archibald Montgomery Massingberd was the Director. The general idea was that England had been divided into two states, Eastland and Westland, while between the two, and belonging to neither, was a valuable mineral area, lying roughly within an eight-mile radius of Whitchurch, the two "key" towns being Andover and Litchfield. This "Naboth's vineyard" was coveted by both sides and a state of acute tension had arisen. Southampton and Winchester, being under control of the League of Nations, were "out of bounds" to both forces. Both states maintained small but modern formations of approximately equal strength, and the peace-time locations of these troops are shown on the attached map.



The composition of the opposing forces was :—

Eastland : 1st Corps (Commander, General Hon. Sir Francis Gathorne Hardy), consisting of 1st Division (Commander, Major-General J. Kennedy), 2nd Division (Commander,Major- General A. P. Wavell), with Corps troops, including one Cavalry Brigade, 160th Infantry Brigade (T.A.), one squadron 12th Lancers (armoured cars), 23rd (Armoured Car) Company (T.A.), two batteries R.H.A., two Army Field Brigades R.A., two Light Brigades R.A. acting as Army Field Artillery, two Medium Brigades R.A., one Field Squadron and two Army Troops Companies R.E., Corps Signals, one company 1st Light Tank Battalion, and 2nd and 4th Battalions Royal Tanks. R.A.F. co-operating included one fighter, one bomber and two Army co-operation squadrons.

Westland : 2nd Corps (Commander, General Sir Cyril Deverell) consisted of 3rd Division (Commander, Major-General R. G. Finlayson), 4th Division (Commander, Major-General J. K. Dick-Cunyngham), with Corps troops, including one squadron 3rd Hussars (mechanized), 12th Lancers (armoured cars), (less one squadron), one Army Field Brigade

R.A., one Light Brigade R.A. acting as Army Field Artillery, two Medium Brigades R.A., two Army Troops Companies R.E., Corps Signals, 1st Light Tank Battalion (less one company), and 3rd and 5th Battalions Royal Tanks. R.A.F. co-operating included one fighter, one bomber and two Army co-operation squadrons.

There are certain points to be noted about organization: while Medium Brigades R.A., R.E. units, and Royal Signals have been fully mechanized, the Field Brigades R.A. are only partially mechanized; some Infantry Brigades have mechanized first-line transport, while others have not; 6th Infantry Brigade (belonging to 2nd Division) is an experimental formation, from which all hooves have been eliminated, and is organized in one support battalion (M.G. battalion) and three rifle battalions. Tank battalions were used chiefly for close support of infantry as "Infantry Tanks," a new idea in tactics, necessitating a new model tank, which is under construction. The employment of infantry tank battalions necessitates the close co-operation of the tanks with infantry, and is not to be confused with the broader role normally allotted to tank units composed of fast-moving medium and light tanks. The organization of the Army at home is in a transitional state, and one can only feel sorry for those Staff Officers who have to co-ordinate the movements of units of such varying composition and strength. But it is also a time of developing thought and novel tactical ideas, and one which offers great opportunities of advancement for men with quick reactions and elastic minds.

Eastland was stronger than Westland by one Cavalry Brigade, one Infantry Brigade (T.A.), two batteries R.H.A. and two Army Field Brigades R.A., but Westland was slightly superior in mechanized troops, by one squadron of mechanized cavalry and one battalion light tanks (less one company).

On 15th September, Commander Eastland 1st Corps was informed that Westland intended to strike at 8 p.m. on 17th September, with the object of seizing the mineral area. Eastland's instructions were to move into that area at any time subsequent to that date, with the object of defeating and expelling Westland forces, but, in order to avoid the stigma of aggression, no move was to be made before Westland. Westland's government, however, was less squeamish and instructed its forces to start operations at 8 p.m. on 17th September and seize the disputed area.

We have been dealing, so far, with purely theoretical considerations, but now fate, or "General Weather," took a hand in the game. A great gale (real) swept England on the night 16th–17th September and caused

widespread havoc and destruction, trees being blown down and telephone wires snapped. The troops, moreover, who had left their tents and were marching to their assembly positions, suffered severely from the inclemency of the weather, so it was decided by the Directing Staff to accelerate the operations and to advance the zero hour from 8 to 2 p.m. on the 17th. This decision was issued to the respective Commanders on the morning of 17th September, at about 11.15 a.m. Westland received the news of the change in sufficient time to get on the march by 2 p.m., but this was unfortunately not, for various reasons, the case with Eastland.

Considerations of time and space are an essential factor in every strategical problem, but it is proposed to mention here only the more important distances as they affected the opposing sides. To begin with Westland, 4th Division was roughly eight miles from Andover and seventeen from Litchfield, the two " key " towns of the disputed area, while 3rd Division was further away. Eastland's 160th Infantry Brigade lay some eighteen miles from Andover and about eleven miles from Litchfield, while the Cavalry Brigade at Alton had a twenty-four-mile ride to Andover or three miles less to Litchfield, other Eastland formations being at greater distances. Figures, however, are dull reading and of little value, unless correct deductions are drawn, but Westland 4th Division was obviously nearer to Andover than any Eastland troops, while it appeared reasonable to expect that 160th Infantry Brigade and the Cavalry Brigade should gain possession of Litchfield for Eastland.

Westland were first off the mark, 4th Division heading for Andover, and 3rd Division for Stockbridge. Eastland moved a little later, Cavalry Brigade and 160th Infantry Brigade on the Whitchurch area, 1st Division on North Waltham, 2nd Division on New Alresford. Armoured cars of both sides covered the advance and were frequently in action, but these machines, although very useful for reconnaissance, have definite limitations as holders of positions. Air action was favoured by the daylight start of the opposing Corps, the reconnaissances of Westland R.A.F. being specially accurate and reliable.

At nightfall on 17th September the situation was generally as under : Eastland Cavalry Brigade was holding a chain of posts from Whitchurch to Sutton Scotney, relieved later in Whitchurch by 160th Infantry Brigade ; 1st Division, on arrival, relieved the Cavalry Brigade further South and held positions south of Whitchurch to Sutton Scotney, while 2nd Division formed bivouacs for the night near New Alresford. Westland bombers were in action against the advancing 160th Infantry

Brigade and 2nd Division, while Westland 4th Division had seized Andover and, rather surprisingly, Litchfield as well, the latter town having been secured by embussing a portion of 4th Division in empty supply lorries. Eastland, however, had not been able to use supply lorries for this purpose, as they could not be made available so early. Westland 3rd Division reached the line Barton Stacey–Crawley–Little Somborne. During the night 17th–18th September a brigade of 4th Division took Whitchurch by a night attack, while R.A.F. on both sides were active in reconnaissance and used parachute flares with good results.

Thus Westland, at the end of the first day's operations, had secured, by rapid movement, the two " key " towns of Andover and Litchfield and had made good the bridges over the River Test. The preliminary moves of Westland in this scheme, which had, of necessity, to be of a rather formal and set nature, afford a good illustration of novel methods of introducing the principle of surprise. Westland 3rd Division was, in the original dispositions, North of 4th Division, but their relative positions by the end of the first day were reversed. This " cross-over " was ordered because 4th Division was nearer to Andover than 3rd Division, but it also had the result of causing uncertainty in the enemy's plans, as Eastland, on gaining touch with 4th Division, would expect to find 3rd Division North of it and, not finding it there, would wonder where it had gone.

Commander Westland Corps issued orders at dawn on 18th September that 4th Division should consolidate its positions about Whitchurch and be prepared to attack in a South-Easterly direction, while 3rd Division was to dig in and wire its line and be ready to attack later to the North-East. Commander Eastland Corps decided to lure on Westland in the North and then counter-attack him with his reserve 2nd Division, marching up from the South. This plan involved 1st Division in the North in a slight withdrawal, while 2nd Division filtered by hidden paths to woods South of Micheldever. 1st Division reported at 1 p.m. that Westland troops were massing for an attack between Overton and Whitchurch and was instructed to withdraw to a previously selected position South of Overton. Westland 4th Division launched its attack at 4 p.m. on this position, but was not successful in taking it. At dusk the position was generally unchanged, but it was obvious that the next day would see a real trial of strength.

The second day's operations included several interesting features, among which the aggressive fighting spirit shown by the 4th Division is most noticeable. This formation, not content with having previously secured the crossings over the Test about Whitchurch, prepared and delivered a strong thrust South of the river against the main forces of

Eastland. This attack, exposed as it was to the possibility of a crushing counter-stroke, was risky, but in war boldness pays.

The employment of the Eastland Cavalry Brigade on this day calls for comment. The Brigade was used on a defensive task, holding positions (dismounted) from Sutton Scotney to a point North of Winchester, but it is suggested that a more active role might have yielded important results. There were at least two alternatives: either to push the Cavalry into the gap between Westland's two Divisions, or (less dangerous) to send them wide round the South flank with orders to capture Andover. Crossing the Test South of Stockbridge, a ride of less than thirty miles was involved, and, allowing for broken bridges and enemy opposition, the Brigade would, by nightfall, either have captured Andover or immobilized strong Westland forces for its defence.

On the night of the 18th September, Eastland Corps Commander considered, from reports received, that the bulk of Westland 2nd Corps was now in the North, and that only weak forces were in position on his left front. Eastland 1st Division was accordingly ordered to hold on to its present positions, while 2nd Division attacked on the left in a North-Westerly direction, objective the Whitchurch area. At 6.30 a.m. on 19th September, this attack was launched, but was engaged while advancing by the Divisional Artillery of 3rd Division and suffered severely. 2nd Division, however, pushed on, driving back a counter-attack by 4th Division, and by 12.30 p.m., after heavy fighting, had forced 4th Division back to their original line Litchfield–Whitchurch–Hurstbourne Priors.

But Westland 3rd Division had not marched North and was still in concealed positions West of Sutton Scotney; and by 9.30 a.m. it was attacking Sutton Scotney and Bullington, which were held by dismounted portions of the Cavalry Brigade and one battalion of the 2nd Division. The attack of 3rd Division was adjudged successful, and by 2 p.m., had captured Sutton Scotney and was progressing Eastwards. Eastland 2nd Division (less one brigade resisting the thrust of 3rd Division) resumed its attack at 4 p.m. with the object of capturing Whitchurch. A battalion of Westland tanks, stealing South *via* Kingsworthy, reached the Micheldever area and put out of action two Eastland batteries and two light tanks, with a loss to themselves of five tanks, while Eastland tanks counter-attacked 3rd Division about Sutton Scotney. Eastland Corps Commander ordered 2nd Division to stabilize their position on the line Sutton Scotney–woods South of Micheldever and to hold on to that line. The operations terminated at 4.45 p.m. with Westland 3rd Division still advancing Eastwards, while 4th Division, in the North, was preparing to resume the offensive against 1st Division.

There were two main offensives during the third day's fighting: firstly, the attack by Eastland 2nd Division against the Whitchurch area, and secondly, the thrust by Westland 3rd Division later in the day against Sutton Scotney. The attack of 2nd Division was apparently made under the impression that the bulk of Westland forces were in the North, but this was not, in fact, the case. Had the presence of 3rd Division in full strength West of Sutton Scotney been appreciated at Eastland H.Q., it is certain that the attack on Whitchurch by 2nd Division would not have been launched without full precautions being taken for the security of the left flank.

The activities of the R.A.F. throughout the operations were continuous and impressive. Reconnaissances were carried out, both by day and by night, and air action was frequently taken against ground targets. The troops are, on the whole, fully alert to the danger from the air and are very skilful in concealing themselves. All vehicles, guns, and tanks are parked under hedges or trees or hidden in woods, while advancing infantry file along the shady side of any available cover. A formed body of troops is never seen halted in the open. H.Q. of formations probably offer the best targets in the forward zone to air attack; they are difficult to conceal and, when located, are very vulnerable. The troops are obviously well trained and showed themselves, in spite of fatigue and bad weather, in their usual good spirits.

Readers abroad who may feel, while on leave, like taking a short but pleasant holiday, should certainly attend Army manœuvres as spectators. A special branch was formed at the Directing Staff camp for the sole purpose of welcoming both Press and spectators, and was most helpful in disseminating accurate information of the progress of operations.

Two main lessons are brought out by these manœuvres: firstly, the advantages to be gained by leaving wide gaps between formations. Eastland divisions started about fourteen miles apart, and at the conclusion of the exercises were side by side. Westland Divisions began separated by about six miles, and finished up with an intervening gap of roughly three miles. Gaps between formations are, as was shown in these operations, a great help towards flexibility of manœuvre and subsequent envelopment of a flank, but the demands of security set a definite limit to the width of such gaps. Westland had the Test running between her two Divisions, and had also a strong force of artillery, centrally posted, to act as a link and as an additional insurance against penetration. The leaving of gaps is intimately bound up with the taking of risks, and if victory is to be gained, risks must be run. A classic example of the connection between wide gaps and victory is to be found

in the operations ending in the capture of Beersheba by the Corps under Sir Philip Chetwode. A broad gap was left between the right and left wings of Lord Allenby's Army ; a legitimate risk was taken and a great success was obtained.

Secondly, the value of surprise. The counter-offensive by Westland 3rd Division on the last day, against the flank of Eastland 2nd Division showed that, in spite of modern inventions such as aircraft and A.F.Vs, and of the restricted nature of the battlefield, it is still possible to effect surprise, and that this psychological weapon is the most irresistible of all those in the armoury of the Commander.

TROOP TRAINS IN INDIA

By Captain R. M. Hall, M.C.

INDIA is almost the only part of the Empire where the running of special troop trains is a matter of everyday occurrence and of special organization. In the United Kingdom, a comparatively small number of troop trains run in connection with summer camps and winter reliefs, but they pass almost unnoticed amongst the vast number of ordinary trains, and they require no maintenance of military rolling stock or special feeding arrangements. India, on the other hand, has more than twice as many regular troops, which are not only divided into British and Indian but are sub-divided by race, caste, and custom —Hindus, Moslems, Punjabis, and Gurkhas—to mention but a few. The country is so large and varied that a troop train may take a week to travel from South to North, or from East to West, may run from sultry heat to severe winter and pass from a quiet garrison to active service conditions.

One must serve in India to realize and appreciate the local conditions and the many special problems of military administration. The bulk of the railway staff employed as labourers and mechanics are necessarily of a poor standard of education and on low rates of pay, and the transport equipment is often not of the newest and sometimes approaches a comparatively primitive standard.

The four largest railway systems are State owned and operated, and there are nine major and thirty-eight minor company railways. The Railway Board officially co-ordinates their work, but each Company preserves its individual character and finances. To ensure smooth and efficient working of military movements over such a complex system, arrangements are concentrated at Army Headquarters, whence emanate orders for the move of all but the smallest parties of troops. The Movement Section of the Q.M.G's Branch consists of a Colonel and two junior staff officers, and an executive traffic officer borrowed from a leading railway, who is known to the Army as "Milrail." In the summer months, when Army Headquarters has moved from Delhi to Simla, 7,000 feet up at the end of a mountain railway, it is a remarkable reflection that this one railway official is personally directing all troop movements throughout the vast land spread beyond the foothills—a busy task indeed!

An average of over four hundred troops trains is ordered by " Milrail " during the year, in addition to an infinitely greater number of moves of parties of varying size by ordinary trains. Both British and Indian troop trains are run to special timings and their journeys average two or three days in duration, but sometimes take a week or even longer. Each railway keeps a book of these timings, graduated in speed for either light or heavy trains, and so arranged that military trains can be fitted in between ordinary trains, early or late in the day.

Troop trains often appear to run exasperatingly slowly. This is unavoidable, because most of them exceed in weight and length the limits for fast trains on different lines, and the men also need long halts two or three times a day to take exercise and to eat. Until very recently, Indian troops had also to cook their food in the open, which meant at least two hours in a siding, possibly at some tiny wayside station.

The Army maintains about one hundred vehicles of various types for its own use, mostly military cars for British soldiers, also kitchen cars for British and for Indian troops, and ambulance train cars. For the rest, Indian railways are well provided with tanks and wagons of all types, and the ordinary public carriages are equally suitable for Indian soldiers. These military vehicles are all broad gauge, 5 feet 6 inches, for use on the main Indian lines ; the metre gauge, though extensive, is avoided as much as possible for military moves, and no special stock is maintained.

The British troop train is a familiar sight in Bombay during the six months of the trooping season, which, incidentally, is the time when most other travellers pass through that busy port. The khaki-coloured train is quite distinctive. The military cars, of which there are about ten on each train, were built during the War, from a design attributed to Lord Kitchener, combining the greatest capacity with as much fresh air and coolness as possible. Each car holds sixty-six soldiers, six to a compartment, seated on two bench seats or lying on folded shelves ; arms and equipment are stowed on racks above. The cars are fitted with electric light and fans, and air circulates freely through compartments separated only by iron stanchions, whilst drinking water is carried in special tanks placed out of the sun's glare. Officers and their families and the men's families may be in military ambulance cars or in railway first and second-class carriages. These have fans, bath compartments, and, if the weather is hot, blocks of ice are put in the family compartments in trays, so that mother's lemonade and baby's milk can be kept cool. The long train is completed and made self-contained by kitchen car and canteen car, baggage and horse wagons. All but the wagons are bogie vehicles, about 70 feet in length and

50 tons in weight. A British battalion, moving from one station to another, requires two troop trains, and the disembarkation of a troop-ship usually fills three trains. From the passengers a train staff is appointed—Commanding Officer, Adjutant, Doctor, Sergeant-Major, etc.—few escape some duty, and perhaps the most onerous task is that of the mother with a charge of small children, especially on one of the hot and dusty routes.

Kitchen car and canteen car are arrangements peculiar to India—a post-War development of enormous convenience and considerable cost. Eight kitchen cars just suffice to equip all trains during busy periods. The main equipment is a " Haddick " cooker, an ingenious stove whose kerosene burners can cook about twenty " dixies " at a time ; there are also a small coal stove, ice room, crockery for officers' meals and for soldiers' families, and living quarters for the staff—a Sergeant cook and two Indian assistants. Coupled to the kitchen car is the canteen, from which tea, fruit, and ordinary goods can be bought at any time, and beer twice a day ; the canteen is worked by a regimental contractor, but railway charges are paid by the Army. Thus the soldier and his family get good meals at the usual hours, and can, at any time, walk along the corridor to buy such extras as his exiguous pay will allow.

These and other arrangements for the soldier's welfare, such as daily supplies of fresh meat, bread and vegetables *en route*, should not be taken as implying a comfortable journey in a *de luxe* train. It is not often that official train reports express much gratitude to Army Headquarters ! Lack of space is the usual cause of " grousing," chiefly because in these days, people are not accustomed to travelling in full trains, whereas " Milrail," though he ensures that every passenger has a sleeping berth, is not in a position to give any spare room. For possible sickness, however, one compartment is always kept spare.

The Indian troop train is quite different, being composed entirely of ordinary railway stock, coloured red or green, etc., according to railway fancy. Journeys to the ports are seldom involved, and the trains are generally for Indian or Gurkha battalions moving in relief. The whole battalion goes in one train, about half a mile long and nearly always attaining the maximum load allowed. If hilly country is encountered, the train has to be split. The men are in third-class carriages, with the usual wooden benches, but in consideration of their equipment and of the time spent in the train, each soldier is given more space than a civilian would get. The men's families, if present with the battalion, travel in separate vehicles, but more often the move is either to or from

a non-family station, so the women and children are far away in their villages.

Indian troop trains have no canteens, chiefly because every station platform has its hawkers, who can supply all the soldier can afford to buy, and until this year there were no kitchen cars either. The long-standing practice has been for a battalion to draw sufficient rations and firewood (in logs) for the whole journey, then to halt in some siding for about two and a half hours during which to cook an evening meal. The weather is generally fine during the trooping season, but even so the time is barely sufficient for wood to be split, stone fireplaces to be collected, food prepared and curries cooked. Should the train be running late, the halt is curtailed. So for the last three years, Army Headquarters have been trying to devise a suitable Indian kitchen car. The problem is by no means simple : cars like those for British troops are too elaborate and require skilled maintenance ; battalions usually contain men of different religions and castes, who could not possibly combine for feeding, and meals for as many as 800 men may have to be cooked in one carriage in hot weather.

A design has now been evolved which seems likely to give satisfaction and certainly has the merit of making the train self-contained, thus obviating the necessity for long halts. Three kitchen cars have been built, each of which contains a small compartment for the officers' mess, and four compartments for the men, allotted by castes or companies. Twice a day the regimental cooks can prepare for the men hot and fresh meals, consisting of the particular sorts of curry, chapati, etc., to which they are accustomed. Rations for the journey and a mixture of coke and charcoal for fuel, which is more handy than unsplit logs, are loaded at the start. Cooking goes on whilst the train runs, and meals are issued and eaten in quite a short time when it stops. In India, corridor stock is rare, so the kitchen car is cut off for perhaps two hours between halts, but this is a minor disadvantage. Three kitchen cars are just sufficient for normal peace moves if the latter are carefully spaced out, but on mobilization, all regiments, British and Indian, would probably have to cook during halts or in open trucks, though other schemes are being thought out.

Such are the present-day arrangements. Soldiers, who were serving before the War, can remember a very different picture, when there were neither fans nor kitchen cars, and both British and Indian soldiers used the third-class carriage, which, in those days, was one long compartment lit by a single oil lamp, with wooden benches and poor springs. At that time, British troop trains ran only during the cool night hours, and when day came their human contents were emptied out into rest

camps—Deolali, Kandwa, Hoshangabad—to mention the most familiar names. During the War, Deolali rest camp was a huge establishment into which all new arrivals and all candidates for home passages were poured, often to lose keenness and fitness in the long waits inevitable in times of enemy submarines and other war delays. The rest camp continued for years after the War as the great depot for troops coming and going. Since 1927, however, a system of direct embarkation and disembarkation has been in force, and has proved both a great economy and a great boon. Now the Army transport, from home, berths alongside the quays at Bombay or Karachi, its troops and families file off into large cool sheds and hostels respectively, are fed, equipped with blankets, plates and mugs, and then entrained the same day from the quayside direct to their new homes in India. Odd men and families, who for any reason cannot proceed the same day, are housed in the hostels, where comfortable quarters have been furnished, largely out of the canteen funds left behind by the now defunct Deolali rest camp. Troops leaving India travel direct from their stations to the quayside in a similar way, and go straight on board the troopship to the decks and cabins that will be their sea homes for the next three weeks.

In conclusion, a word about feeding. On board troopships there are few complaints—officers, men, and their families are well fed by the Bibby and British India Companies which run His Majesty's five troopships. In India, as mentioned at the beginning of this article, arrangements have been made which are peculiar to the country but which suit its conditions. Full troop trains, British and Indian, have their kitchen cars, and troops in smaller numbers are fed, not directly by the Army, but by Indian regimental contractors. These business men, warned by the Staff of the passage of troops through the various main railway stations, send parties of cooks with stores to those stations and there, by a standing arrangement with the railway companies, they cook breakfast, dinner or supper as required, and serve it out to the men on the station platform as the train comes in. The soldiers' families are included in the ration strength, and they are given free meals whilst travelling, in recognition of the various other unavoidable extra expenses incurred.

Finally a word of thanks is due to the railways themselves, particularly for the smoothness with which they arrange the running of either troop trains or parties of troops on journeys which traverse the lines of several different companies. Indeed, the transfer from one company to another is seldom noticed by the military passenger.

THE ARMY AND THE AIR

A REPLY

By " LIAISON."

IN an article entitled " The Army and the Air," in the August issue of the JOURNAL, Captain MacGregor in his opening paragraph deplores the ignorance of the Army regarding the Service which in war is responsible for providing the Army's eyes. One may perhaps be forgiven for remarking that he has said little to remedy this ignorance, but rather, by his misrepresentation of facts, has tended to befog the issue still further. It will, for instance, hardly lead the Army officer to a better understanding of the Royal Air Force to read that the policy of the latter Service is " bombing," whilst that of the Army is " the protection of the nation." He may also find himself somewhat hard put to it to disentangle the differences in the application of these policies when he reads in the same paragraph that the Army may be called upon to take aggressive action abroad " to break an enemy's will to resist" while, under the threat of bombing from the air, an enemy nation " may find its life so seriously disorganized that it will accept terms of peace."

Actually, of course, the aims of the two Services are precisely similar. Each seeks to co-operate with the other, and both of them with the Navy, to overcome the enemy. Each Service has its part in this task ; each tries to play this part to the best of its ability ; all are seeking the same aim. Confused talk of a difference in " policy " between the Army and Royal Air Force, therefore, builds up no *prima facie* case for a modification of the existing system of supplying the Army's needs in the air.

Apart from the question of policy, Captain MacGregor's criticisms appear to fall under three headings :—

(*a*) That the Army Co-operation pilot has a highly specialized job ; the implication presumably being that he should therefore be trained for that job, and that job alone ;

(*b*) That the proportion of short and medium service commissioned officers in Army Co-operation squadrons is too high ;

(*c*) That in war, the Air Ministry is likely to withdraw pilots from A.C. squadrons to replace casualties in other units.

Let us examine these postulations in detail and so ascertain whether the position is really as portrayed by him.

The Army Co-operation Pilot

To take the first: Captain MacGregor rightly stresses the fact that the Army Co-operation pilot must be a young man of considerable versatility. But he does, perhaps, less than justice to the mental ability of the average British officer, of whatever Service he may be a member, when he suggests that the Army Co-operator is really a *rara avis*. Moreover, he destroys much of his own argument by pointing out that all officers of the General Duties branch are liable for service in any type of squadron, and are so trained as to be interchangeable from one squadron to another. But, in fact, does the work of an Army Co-operation pilot necessitate such outstanding ability? One may here mention that pilots are not specially "hand picked" for Army Co-operation duties, yet the average standard of training is sufficiently high for all practical requirements. And does his work really necessitate so very unusual a degree of training? I think that those who have had experience of both A.C. and other types of squadrons would be the first to deny this assumption.

Two years is a quite normal period in peace time for the training of a pilot from *ab initio* to a state of reasonable efficiency, no matter to what type of squadron he may belong. The length of the flying training course is the same for everybody. Morse, air gunnery, photography, navigation are demanded of, and required by, nearly all pilots. Night flying is also not peculiar to bomber or fighter units, nor are A.C. pilots trained in this art with a view to making them interchangeable with bomber or fighter pilots, as Captain MacGregor suggests. In fact it is not too much to say that the ability to fly by night will soon be far more essential to the A.C. pilot than to the bulk of bomber pilots. Admittedly each type of squadron has its own specialist subjects in which it differs from other types of squadrons, or in which it has to attain a higher standard of training. The specialization of the Army Co-operation pilot comes under this heading. His special knowledge really consists of an understanding of the organization and employment of Army formations and units, and of artillery observation.

As regards the first, it is a fixed rule that the pilot reports only what he sees, leaving the staff on the ground to draw deductions from his reports. It is not denied that a sound knowledge of Army organization and tactics is essential if reconnaissances are to be made intelligently. But this knowledge need not be of so detailed a nature as to require prolonged study. The presence of the profound tactician in the air,

resulting in too great reliance being placed on his reports and deductions, may even be a danger, as witness von Kluck's unfortunate reliance on the air report which sent him chasing the British Army towards Maubeuge.

Artillery observation is also not a " black art," and the system, which has not materially altered since the War, can be learned, given plenty of opportunity for practice, in a very short time. It is not denied that the value of an Army Co-operation pilot increases with experience up to a certain point. This is universally true, but there seems no reason to suppose that this point takes longer to attain as regards Army Co-operation than in any other type of air work.

It has always been the policy of the Royal Air Force to keep the term " General Duties " as a really descriptive title for the flying branch of the Service, as opposed to the Stores, Medical, etc., Branches. Flying, once mastered, is an art of universal application ; a flying officer has therefore to learn only the details of the employment of the particular type of squadron to which he is posted, whether it be Fleet Air Arm, Army Co-operation, Bomber, Fighter, or Flying Boat, and experience has shown that the average officer can settle down and become a reasonably efficient member of any one of these types of unit in a matter of comparatively few months. Under the stress of war, this period would be reduced considerably. It is difficult, therefore, to understand in what manner the policy of interchangeability constitutes a danger to the Army.

The Short Service Officer

Captain MacGregor's second criticism is even less understandable. One great advantage of the short service commission scheme is that it allows a reserve of pilots to be built up to fill war needs. Incidentally, Captain MacGregor's estimate of the proportion of short service personnel is far from accurate—but that is beside the point. If, as is suggested, experience and training are of such vital importance for Army Co-operation work, the fact that a reserve of officers with such experience exists, and can be drawn upon in time of war, is surely a matter for congratulation. It must not be forgotten that casualties in Army Co-operation squadrons in wartime will probably be considerable. Where, if the work is of so complex a character as we are told, are these replacements to be found if there are not trained reserve officers to fill the gaps ? Perhaps, however, Captain MacGregor's real objection to the temporarily commissioned officer is that his short length of service does not permit of his being trained to the necessary degree of proficiency. But is it not universally admitted, and with justification, that the short service officer is normally every bit the equal of his permanent

confrère (or, for that matter, the seconded officer) as regards ability, etc. ?

Withdrawal of A.C. Pilots to replace Casualties

Now we come to the *pièce de résistance* of Captain MacGregor's plaint. He fears that the Army's air needs will have been prejudiced beyond repair by the action of the Air Ministry in withdrawing pilots from A.C. squadrons to fill gaps caused by casualties in the bomber and fighter squadrons. Let us see what grounds he has for this gloomy forecast. The A.C. squadrons involved are presumably only the five normally stationed in the United Kingdom. The pilots in these squadrons at the present moment number under seventy all told. May not the Air Ministry be relied upon to be sufficiently long sighted not to rob the Army of this comparatively small number of specialists ? Remembering that, although " General Duties," these pilots could in fact hardly take their places immediately in a fighter or bomber squadron without some preliminary training or " polishing up " in the functions peculiar to their new unit, might it not be quicker to replace casualties from those bomber or fighter pilots who had recently gone to the reserve ? Further, the Air Ministry is committed to provide a quota of Squadrons for Army Co-operation work. There is no justification for doubting that the Air Ministry will honour its bond, or for suggesting that the Army will have to be satisfied with " second best." Surely it is not too much to hope that the Services may be trusted to work together for the attainment of the national aim.

The Question of an Army Air Arm

Such assurances, however, may not satisfy Captain MacGregor, who is apparently hankering after an Army Air Arm on the model of the Fleet Air Arm, though it seems that he does not want even the quota of R.A.F. flying personnel which is to be found in the Fleet Air Arm. Only " such essential technical R.A.F. personnel as are necessary, in the interests of economy," are to find a place in his A.A.A. ! He skates happily over the problem of how such an air arm should be organized. For to say that the workability of the scheme is demonstrated by the existence of the Fleet Air Arm is merely to display ignorance of the organization of the latter force. In the Fleet Air Arm no less than 30 per cent of the pilots and practically *all* the skilled maintenance personnel belong to the Royal Air Force ; training, provision of material, provision and command of shore bases are all Air Force responsibilities. A complicated and delicate mechanism has had to be constructed to make this system work ; a system necessitated by the special conditions of naval warfare. The sea is an element over which the airman is not

initially trained to work; naval warfare is something strictly *sui generis*. Questions of the command of ships, and of the air forces carried in them, require special treatment—and the Fleet Air Arm is the child of all these special conditions.

The case for an Army Air Arm is not analogous. No such special conditions exist in relation to air forces on land, and the whole problem is vastly simplified when compared with that which faces naval air co-operation. Liaison and understanding between the Army and Royal Air Force is already good and, assisted by senior officers' courses and the exchange of staff officers, is improving yearly. It is by such means as these, rather than by the control of its own air arm, that the Army will attain the second desideratum which Captain MacGregor lists towards the end of his article. The men for whom " a thorough knowledge of the ground requirements and of the ability of the air arm to meet them " is essential, are primarily the commanders and staff officers who will have to employ their Army Co-operation squadrons in furtherance of the plan, rather than the airmen who will carry out their orders.

Of the desirability of building up a reserve of Army personnel trained in Army co-operation work there can be no question, least of all by the Royal Air Force, and the machinery for this already exists. It is merely a matter of detailed arrangement between the War Office and the Air Ministry for the numbers of this reserve to be increased. If the provision of useful occupation for subalterns is really so live a question as is suggested it would surely not be impossible to allow for a larger secondment, to the Royal Air Force, of officers who would later form the required reserve. But whether they would, in fact, be available at short notice to return to flying duties on mobilization is another matter. It is true that it is laid down that seconded officers are liable to serve with A.C. squadrons if mobilization occurs during the period of five years after their return to their parent arm. In practice, however, it is probable that it would be as difficult to rob a battery or an infantry battalion on service of one of their officers who happened to be a reserve pilot as Captain MacGregor expects it to be to prevent the Air Ministry robbing the A.C. squadrons to make good casualties elsewhere. Actually, at the moment, this disadvantage is unlikely to cause the Air Ministry much alarm, for the number of regular officers at present so seconded is only eighteen. Perhaps the true value of the scheme lies in the dissemination of air knowledge amongst, probably, some of the commanders of the future, rather than in the creation of a reserve.

Despite Captain MacGregor's assurance that a proportion, if not all, of the officer pilots for his suggested Army Air Arm could be found without increasing existing establishments, one questions whether this

is really so. In peace a number of officers might be spared, but in war parent units would presumably require every officer on their establishment. If it is true that they can be spared in peace, and are also not required by their units in war, what is the justification for their existence? With an Army Air Arm manned as suggested we should, on outbreak of war, have A.C. squadrons minus their pilots, or Army units short of officers.

Conclusion

The creation of a separate Army Air Arm appears to be a rather cumbrous method of solving the difficulty of adequate liaison between Army and R.A.F. Such liaison is only one part of the larger question of liaison between all the Services; an essential condition of efficient Imperial Defence. By means of the courses and exchanges already mentioned, and the association of officers of all three Services at the Imperial Defence College, is it not probable that this question of satisfactory liaison will, in time, solve itself? Will "unity of command" really confer any outstanding benefit? In peace, the War Office are consulted at every phase of training and equipment of Army Co-operation units. In war, the Army Co-operation squadron, when placed under the orders of a military formation, is operationally part of that force, and is used as the G.O.C. wishes. Is it of great moment whether the members of the squadron wear khaki or blue—practical unity of command is achieved just the same.

What real advantages then will the introduction of a separate Army Air Arm afford, to counterbalance the setting up of the special machinery of training, organization, and supply which will be necessary? It is suggested that, examined in the light of this article, the advantages claimed by Captain MacGregor are illusory.

AIR EXERCISES, 1935

By Group Captain A. Claud Wright, A.F.C., *q.s.*

THE Air Exercises are the culmination of the training year for those R.A.F. units and Observer Corps which are under the command of the A.O.C.-in-C. Air Defence of Great Britain. As a rule, they also include co-operation with such Regular and Territorial Army searchlight and anti-aircraft units as can be made available. They are in no sense a full-dress rehearsal of all the methods of air defence that may be at the disposal of the Government; for this reason, and because the Exercises are necessarily shorn of the realities of war, those who study their progress in published reports would do well to avoid drawing any hasty conclusions.

The Air Exercises, 1935, were divided into two periods: the first from 6 p.m. on Monday, 22nd July, until 8 a.m. on Tuesday, 23rd July; and the second from 6 p.m. on the 23rd until 6 p.m. on Thursday, the 25th July. The continuous period of forty-eight hours was an innovation, and afforded an opportunity to study the effects of fatigue on the staffs and units, as well as to test the adequacy of the establishments in personnel for both.

As aircraft performances improve, communication must be quickened and tactics altered, and the Exercises also provided an opportunity to investigate these problems.

The Objects.

There were three main objects to be attained:—

(1) To give the A.O.C.-in-C. an opportunity to test the operational efficiency of his command;

(2) To exercise the Observer Corps and the Regular and Territorial searchlight and anti-aircraft brigades, located for the time being in the Thames Estuary and in Kent.

(3) To gain further experience of the use of aircraft in reporting the approach of enemy bombing attacks.

Although these aims are broad enough for the employment of the forces available, they were distinctly limited from the wider aspect of national air defence.

General Scheme.

The territorial objective of the Exercises was London and its defence. For this purpose the area of operations, called Northland, was bounded

by the coast from the Wash, South about to St. Albans Head, in Dorset, and thence on a bearing inland to Banbury, in Oxfordshire, and to King's Lynn, in Norfolk, having London approximately in its centre. Halton, in Bucks, was selected as the capital of Northland, with Cardington, in Bedfordshire, as an important military centre. The London area contained nine detailed targets.

Southland, the aggressor, was supposed to cover the English Channel and southern North Sea.

Northland air forces consisted of fifteen fighter squadrons, one reconnaissance squadron, and six observer groups contained in the area, together with one Territorial searchlight battalion in Kent and the 1st Air Defence Brigade, consisting of anti-aircraft and searchlight units, located in the Thames Estuary. The fighters were already suitably located at their home stations. The reconnaissance squadron was used for reporting the approach of enemy raiders and was included to achieve the third object of the Exercises. One of the fighter squadrons was an Auxiliary Air Force unit. The training programme of the Regular and Territorial units did not permit of more than a small part of the total area which will eventually be lit round London being available. The lack of searchlights in the other areas denied to Northland an essential portion of his defence.

Southland's air forces were made up entirely of bomber squadrons: seven were light bombers, one a medium bomber, and eight were heavy bombers, totalling sixteen bomber squadrons.[1] Of these units, three of the heavy bomber squadrons were Special Reserve or Cadre squadrons.

The majority of Southland's squadrons are normally stationed within the confines of the area of operations, that is to say about a hundred miles from the Northland coast. Southland's squadrons were therefore ordered to fly direct to the coast before turning to make their attack. This method served two purposes: it provided the maximum practice to the Observer Corps posts and ensured that the bombers flew about a hundred miles before crossing into enemy territory. The shorter-ranged light bombers were permitted to organize and use advanced landing grounds for rearming and refuelling, but Northland was forbidden to take advantage of these unreal conditions to carry out fighter attacks on Southland's aerodromes. The heavy bombers were not permitted to attack London targets from behind the defences unless they had first traversed an Observer area. In order to exercise the searchlights, a large proportion of the night bomber attacks had to be routed over the lighted area and, as only a proportion of the Observer

[1] The terms "heavy" "medium" and "light" describe the relative weight of bombs carried.

posts were manned after midnight, the second half of the night raid plan was designed to practice the Observer Corps posts during the time they were on duty. During the periods when the Observer posts were not manned, bomber squadrons reported their position by W/T to the Directing Staff at regular intervals. This intelligence was passed on to Northland headquarters. These conditions naturally curtailed the freedom of action of Southland's forces, but that is unavoidable in peace exercises.

Northland forces were commanded by the A.O.C. Fighting Area, and Southland forces were under the joint command of the Air Officers Commanding Western Area and Central Area, which ensured a co-ordinated bombing plan by day and night.

Records and Restrictions.

The efficacy of the bomber attack is the degree of destruction of its target; that of the fighter defence is the proportion of bombers destroyed. In peace exercises, the degree of success of either can only be assessed by artificial means based on the judgment of umpires. The bomber attack is judged by camera obscura results, and the fighter defence by the proportion of raiders intercepted and the accuracy of their gunfire as shown on the camera gun films.

At the centre of each target was placed a camera obscura manned by skilled armament personnel, the officer in charge being a camera obscura umpire. As a bomber raid approached, its image was followed up on a screen, its track being plotted at timed intervals. At the moment the bomb should have been released a bright light was shown in the aircraft and plotted on the screen. From the plot, and given the true height of the aircraft, the bearing and distance of the fall of the bomb from the centre of the target was calculated. The details of each attack were recorded and judged to be " hits " or " misses," or " unobserved " when part of the data was not obtainable on account of visibility.

Both bombers and fighters carried camera guns. The accuracy of the shooting was judged from a study of the developed film, but that could not be done until some time after the combatants had landed. Camera guns cannot be used at night, but attacker and attacked recorded the time, height, and place of combat, having attempted to identify each other by light signals. Both sides reported combats to the Umpire Staff. When identification failed, the Umpire Staff attempted to confirm combats by establishing similarity in height, place, and the time of combat from comparing the reports rendered by both sides. There is bound to be a time lag before a combat can be confirmed,

meanwhile each combatant has probably fought again. It is, therefore, almost impossible to award casualties at all justly, and it is not attempted. It is something, however, to know the proportion of raids that have been intercepted. Unconfirmed reports were fairly numerous and tended to show that the accepted figures were on the pessimistic side.

In peace, it is necessary to ensure some degree of safety in a congested area where many aircraft are flying by day and night, to which end regulations regarding closeness of combat and the use of navigation lights were laid down. The use of navigation lights was reduced to a minimum, as they disclose the position of the aircraft to both the ground Observer and the defending fighter.

The Londoner naturally resents his sleep being disturbed, and many are the complaints received each year. To reduce both to a minimum, aircraft were not permitted to fly below 5,000 feet within seven miles of London Bridge. No restriction was placed on the lights in the London area or on civilian aviation, as would be necessary in war.

Narrative of the Exercises.

The man on the ground is not seriously affected by weather; the ship does not fear fog or storm in the open sea; but to those who fly the weather is, to some extent, still a dominant factor. The application of scientific discovery is not yet so perfect that there is no risk in landing in fog, by day or by night; the complete mastery of the clouds is not yet attained. On the other hand, clouds are of tactical value to both bomber and fighter. When, however, many bombers are converging on a fairly small area, seeking their targets, and fighters are seeking to intercept them, fog and low clouds are at least a deterrent and reduce the chances of success to both bomber and fighter. What they lose in success is gained in experience, making the attempt of great training value.

The weather forecast for the first period—from 6 p.m. on Monday, 22nd July, until 8 a.m. on the 23rd July—was mainly correct, for thick fog was found over parts of the South-East coast and, before midnight, fog formed over the South-West aerodromes and various aerodromes in the vicinity of London, but became low cloud in the early morning.

The ultimatum that Southland had issued to Northland expired at 6 p.m. Northland failed to meet Southland's somewhat excessive demands, and war was declared.

Low clouds made ground observation difficult and Observer posts could only judge the direction of the raiders by sound. For the same reason, Northland's air reconnaissance aircraft found it difficult to find

the raiders and identify them. Northland's intelligence, disjointed and incomplete as it was, placed that side at a disadvantage. Six bomber squadrons and six bomber flight raids took place before dark. Twelve air battles took place in all. Two diving bombing attacks were judged successful, but they had to fight their way out. The " track " of some of the bombers had been " dog legged " in an attempt to mask their final objective and to exercise as many Observer posts as possible.

Southland had ordered thirty-four night raids by single aircraft, and two by formations of three aircraft, the plan being to continue the day attack all through the night in a steady stream, the main object being the London targets. Before the heavy bombers were well started, fog closed down on two of Southland's aerodromes and, spreading later, eventually made it necessary to terminate the night operations. In all, fifteen raids were abandoned and some aircraft took refuge at other than their own stations. The sky above the fog was, however, clear and Northland fighters made fifteen combats. Ten raiders were not attacked. The London docks were judged to have been hit.

In spite of the prevalence of early fog on the 23rd, which, as the sun rose, became low cloud or haze, only one Southland raid was abandoned. Northland's fighters found these conditions an advantage, for Southland bombers showed up clearly on the white-topped ground haze. Four of the Southland raids were attacked. In the clear air above the clouds, Southland's formations could be seen horizontally up to fifteen miles by the fighters.

Southland's plan during the second phase was to maintain a continuous attack, day and night, using two light bomber squadrons and one medium squadron for bridging the gap between day and night operations. To this end, six light bomber squadrons and six light bomber flights pressed home their attack during the evening of 23rd July. Two diving bombing raids were made, one target being attacked in squadron formation ; the second target was attacked by three flights. Both formations were intercepted on the way in, so that the material effect of their diving bombing attack was very much in doubt. The medium bomber attack was made in the uncertain light of dusk. The result was not observed owing to the intervening light haze.

Southland night operations on the 23rd–24th July were marred by the increasing fog, and as a result eighteen raids were abandoned. The apparent success of twenty-one night bombers was partly due to the unusual condition of vertical visibility in the upper air, which made it very difficult for the fighters to find their enemy, especially where no searchlights were available. In spite of the fog over most areas, none of Northland's aerodromes were put out of action.

Fog persisted well after dawn over most areas, but about 5.30 a.m. on 24th July conditions improved and Northland patrols were able to get away by 6.05 a.m. The day was to be one of heavy and intensive fighting.

The A.O.C. Southland air force decided to change his tactics and attack by small formations. His seven light bomber squadrons and one medium squadron carried out forty-five raids, of which only thirteen were in squadron formation, the remainder filtering through in flights of three or four aircraft.

During the midday period he also confined his attacks to a common channel, for eighteen raids came up the Thames estuary in a steady stream, whereas, before, the raids had come in scattered over a wide area from the North through East to the South-West. These tactics were a severe test of the elasticity of the A.O.C. Northland Air Forces fighter control, but intelligence at his disposal and the alert response to his orders caused Southland to be denied a full measure of success. A number of combats claimed by fighters were not confirmed by the bombers.

The night of 24th–25th July was of intense activity, for sixty-five raids took place. These raids, too, were unusually high. Light ground haze partly obscured targets and made it difficult for both the bomb aimer and the target umpires to see, so that 37 per cent. of attacks were not observed.

On the last day of the Exercises, the day broke with fog and mist over wide areas and Northland fighters did not get away until after 8.30 a.m. The same conditions delayed Southland bombers. Although starting so late, and perhaps because it was the last day of a very strenuous training year, both sides worked up to maximum intensity for the remainder of the day. Southland sent over twenty-four light bomber raids, three medium bomber raids, and seven heavy bomber raids, totalling thirty-four daylight raids. There were fifty-three confirmed combats, many of which were at unusually high altitudes. The percentage of hits was, however, slightly less than had been previously recorded. The number of unobserved bombing attacks were also fewer.

At 6 p.m., the A.O.C.-in-C. ordered operations to cease.

Umpire Staff Organization.

A very healthy spirit of competition exists between individual crews of aircraft, between squadrons, and between bombers and fighters. The bullet or the bomb in war decides which is the better trained man or squadron. In peace, assessment of fighting efficiency depends upon the accuracy with which each form of bomb or machine-gun attack can

be measured. The value of the tactical application of both these functions depends upon the weight of bombs dropped and the relative number of aircraft which meet in opposition. This evidence must be laboriously built up from each individual raid or interception before the laurels of victory can be awarded to either side, for there is no " coign of vantage " in the air from which the whole area of operations can be viewed. Even with the most effective system of umpires, the factors affecting victory are so complex that he would be indeed a courageous, but incautious, man who could say with conviction which side had won.

The success of the umpire system depends upon maximum rapidity of communication, and it was organized as follows. An Air Umpire, detailed to each day and night bomber squadron, accompanied each squadron raid and, after landing, recorded time, place, and height of combats. He signalled this information to the Umpire Staff at the headquarters of the Directing Staff. A recording officer was detailed at each fighter station to receive the reports of the fighter pilots when they landed, consolidate the reports, and forward them to the same authority. The camera obscura umpire, having calculated the results of each bombing raid, also forwarded his report to the Chief Umpire Staff by the quickest possible means.

There was a Chief Umpire, and a staff of umpires and clerks, at the headquarters of the Directing Staff. This staff maintained a history of every raid, showing the combats that had occurred and the results of the bombing. The most difficult task was to " mate " the bomber and fighter combat reports, for the Air Umpire accompanying each squadron raid landed hours after the recording officer at the fighter station had forwarded the fighter reports. There were approximately five hundred reports to " mate." It is not too easy, when flying at three miles a minute and three miles high, to state to a mile or two where a combat took place, and participants in the same combat may each report a place some miles distant. When haze, cloud or darkness intervenes, the location of a combat is often quite unreliable. The problem is simplified, however, if bomber " A " can identify fighter " B," but the need for safety regulations in peace does not always permit of closer recognition than by type of aeroplane. Flying by night makes even this a little more difficult. At the headquarters of the Directing Staff a chart is maintained showing the track of each raid ; the place of combat should obviously be near this track. With the best will in the world some differences in records by bombers or fighters are unavoidable, but the bomber who does not see or know he is being attacked is not likely to live to tell the tale in war.

The differences in methods used by air warfare by day and air

warfare by night are based on the relative ability to see. In daylight, the bomber depends on speed, with relatively small load, to evade the attacking fighter, and flies in formation to gain a concentration of fire to repulse the fighters. By night, however, the bomber depends less on speed (and therefore carries more load) than on the darkness to cloak his approach. Being a much heavier type of aircraft, more crew and armament is carried. It is therefore reasonable to assume that, without the artificial aid of searchlights, the heavy bomber should more frequently reach his objective unseen. This point was well illustrated by the fact that so small an area was lit by searchlights.

It can safely be said that the aims of the Air Exercises were gained, albeit they were limited ones. The operational efficiency of the A.O.'s C.-in-C. Command was successfully demonstrated. The flying times showed that the squadrons carried out their functions smoothly and expeditiously, although at great pressure. The Observer Corps, Searchlight, and Anti-Aircraft Brigades were well exercised to the limits of the flying hours expended, a large proportion of the raids having been routed specifically for this purpose. Further evidence of the value of air reconnaissance was gained. In addition, new tactics, experimental methods, and equipment were tried out. Some were successful; some were not, but it was to obtain this knowledge that they were tried. Adjustments to establishments, facilities to ameliorate fatigue, speeding up communications, and improved camera obscura methods to overcome the problems of extended altitude, are all subjects to be further investigated.

Limitations of Peace Conditions.

The proportion of raiders that were not intercepted may seem surprising, if not alarming; but there were many factors which would affect events in war that were not present during the Exercises. Amongst these, the following may be noted:—

(i) Searchlights were available in only a small part of the area that will eventually be lit: the heavy training programme of the Regular and Territorial Army did not permit of more units being available, but even at their present full strength, there would still be a large area unlit until all the new Territorial infantry battalions are fully equipped and trained. Searchlights not only light up the raider as an anti-aircraft gun target, but indicate his presence to the prowling fighter some miles away; that alone would greatly reduce the percentage of unintercepted night raids.

(ii) Anti-aircraft gun fire should not only take a toll of the enemy raiders, but the smoke and flash of the bursting shell would be a guide to the fighters on patrol by day and by night. The anti-aircraft units are an essential factor in the destruction of the enemy.

Service in the searchlight battalions and anti-aircraft batteries should make a strong appeal to the youth of the country, for there are few that do not take a joy in firing guns, especially when they can see the effect of their fire.

(iii) Both searchlight and anti-aircraft crews are expert ground observers, and as such take a very important place in the intelligence system. If the exact direction and height of the raids is known, the maximum use of the fighters can be made with confidence and economy of force.

(iv) A darkened city does not disclose its targets; but the lights of London during the Exercises were a beacon to guide the raiders.

(v) The pilots of Southland's forces knew their own country intimately. Even so, our own pilots found that low clouds and haze made it difficult to recognize their targets and, at times, locate them.

(vi) No casualties were assessed, for much training would be lost thereby, but in war the effective strength of both sides would be reduced. The raiders' casualties would be complete losses, as his crews and aircraft would land in enemy territory.

(vii) There were no material obstacles as were used in the late war, such as balloon barrages, etc. These form a psychological as well as a material deterrent to the raider.

The Observer Corps.

An article upon this subject would be incomplete without tribute being paid to the work of the Observer Corps. The men that comprise its personnel are all volunteers; they spend many hours in cold and open fields tending their instruments, and after a few months' training their skill, born of enthusiasm, is of a high standard. During such Exercises, every moment they are free from their daily occupations is spent at their posts until midnight, and each is on duty all night at least once during the four days. The hours of duty are long and the work fatiguing, yet they still have to do a full day's work in the office, at the bench, in the garage, or on the land, the next day. All honour, therefore, to these unselfish men who give their services freely to assist those whose onerous task it is to defend England against air attack.

THE INTERNATIONAL SITUATION

THE LEAGUE OF NATIONS AND THE ABYSSINIAN AFFAIR

IT is a curious fact that Italy—now at variance with the League of Nations because she has invaded Abyssinia—was, with France, the chief advocate for the admission of that country into the League. In 1923, when the Sixth Committee of the Assembly had the matter in hand, Count Bonin-Longane, who was Signore Mussolini's representative, alluded to Abyssinia's application as " a tribute to the League . . . coming from a nation which . . . by remarkable tenacity . . . had been able to preserve its religious faith and national character throughout the ages, [and] had acquired titles of nobility to which due justice must be done."

It is now obvious that Italy was not acting from altruistic motives in sponsoring the Abyssinian cause at Geneva : she had long felt aggrieved that the promises of opportunities for colonial expansion held out to her as an inducement to join the Allies in the Great War, had never been fulfilled. Abyssinia was the only independent state left in Africa ; Britain was suspected of having designs on that country herself—an impression which was probably enhanced by some expressions of doubt about the admittance of this new member on the part of the British delegate. Italy, perchance, hoped that in future she would be regarded as Abyssinia's particular guardian (and director) to the exclusion of other competitors for favours in this promising land.

The Anglo-Italian Agreement.

Two years later, in 1925, the British and Italian governments came to a friendly understanding to further each other's particular interests in Abyssinia. Britain wanted a concession to build a barrage on Lake Tana, and a motor road from that locality to the Sudan ; Italy desired to run a railway through Abyssinian territory to link up Eritrea with Italian Somaliland ; she also sought economic concessions in what she evidently conceived would become an Italian zone. In agreeing to this dual policy, Mussolini expressed satisfaction that proposals which were objected to in 1919 were now acceptable and hinted at " a wider negotiation of a colonial character."

The stage seemed to be set for amiable co-operation between Britain and Italy in developing and civilizing Abyssinia. Unfortunately, neither of the co-operators thought it necessary to inform the Emperor of their benevolent intentions—an omission which was distinctly hurtful to a country whose " nobility of character " had been so loudly proclaimed when it was admitted as a full-fledged Member of the League. Incidentally, the Emperor profoundly mistrusted the proposed adventures of these aliens within his borders, and expressed his desire to do his own developing and civilizing in his own way. Italy protested her innocence of any sinister motives; but the Emperor would have none of it, and maintained that such an agreement, made without the knowledge of Abyssinia, was incompatible with the terms of the Covenant.

The 1928 Treaty.

In 1928, Italy concluded a treaty with Abyssinia by which both parties agreed to submit any dispute not settled by diplomatic means to conciliation and arbitration, and not to have recourse to force. Each government also specifically undertook " not to engage under any pretext in action calculated to endanger or prejudice the independence of the other."

Backed by the League, her relations with Italy regularized by a treaty in such categorical terms, Abyssinia in her mountain vastness might well have regarded her position as impregnable. But Italian ambitions, lashed by an insatiable leader, found no satisfaction in this preservation of the *status quo*. Unfortunately, too, unruly elements in the more remote districts, from time to time created incidents which were largely beyond the control of the Emperor in far-off Addis Ababa. These culminated in an armed affray at the Italian Consulate at Gondar in September, 1934, and the episode of the wells of Walwal in December of that year, followed by further " incidents " of a violent nature in January and February of 1935.[1]

On 16th December Abyssinia presented a protest to the League of Nations against Italian aggression. Italy's reaction to this was to mobilize two divisions for service in East Africa.

Appeal to the League.

Negotiations between the two governments having proved abortive, on 19th March, 1935, Abyssinia appealed again to the League, invoking Article 15 of the Covenant to provide for arbitration. On 11th April,

[1] See "The International Situation" in the Journals of February, May, and August, 1935.

Italy agreed to place the matter in dispute before arbitrators; but whereas the Emperor desired that arbitration should extend to the whole question of the delineation of the frontier, Mussolini insisted that it should be limited to responsibility for the Walwal incident, his contention being that there could be no questioning of the right of Italian troops to occupy Walwal, and that, therefore, the Abyssinians should apologize, salute the Italian flag and pay an indemnity.

The subsequent sequence of events can be conveniently summarized in their chronological order as follows :—

7th May.—Italy mobilized new forces numbering about 200,000 men.

25th May.—League of Nations appointed a Commission of Arbitration consisting of two Italian and two Abyssinian representatives and fixed 25th August as the date by which conciliation and arbitration should have taken place. Both nations concurred.

31st May.—Italy mobilized a division of 15,000 men, and constituted three new Blackshirt divisions.

9th July.—The Commission reached a deadlock because the Italians would not listen to any arguments about the frontier question.

22nd–25th July.—Mr. Eden, Lord Privy Seal, had a series of conversations with Signor Mussolini, during which he strongly emphasized the British and French objection to an Italian offensive against Abyssinia.

31st July.—An extraordinary meeting of the League Council was convened at which M. Laval initiated the resumption of the Commission of Arbitration with a fifth member as " super-arbitrator." At a subsequent meeting on 3rd August, the League Council adopted this resolution and agreed that the Commission should confine its investigation to the question of responsibility for the Walwal incident, and " confident that the procedure would have brought about a settlement . . . before 1st September, 1935," the members of the Council broke up for their summer holidays until 4th September, when it was to meet and examine " in its various aspects the relations between Italy and Ethiopia." Unfortunately this optimism was not justified, and matters began to go from bad to worse.

6th August.—Mussolini ordered the additional mobilization of five divisions, including a sixth Blackshirt division of ex-service men. This meant that, with the calling up of conscripts born in 1915, the Italian forces would number nearly 1,000,000 men. These measures, it was stated, were necessary " in consequence of the advanced mobilization of the Ethiopian forces and Italy's right to a place in the sun."

12th August.—An Italian newspaper [1] typified the official attitude when it stated that " an expansion which is not supported by arms, a Protectorate which is not accompanied by military measures, might end as did that of Uccialli.[2] . . . The problem admits of only one solution, either with Geneva, without Geneva, or against Geneva."

30th August.—Addressing the troops at the end of annual manœuvres on a grand scale, Mussolini said " the world must know once again that while it continues to talk of sanctions, we will not give up one soldier, one sailor, one airman, but will make the armed forces of the nation as strong as they possibly can be."

4th September.—The League Council met again and heard conciliatory speeches by Mr. Eden and M. Laval. But Baron Aloisi would have none of these diplomatic generalities. " We are concerned here," he said, " with vital interests . . . for Italy's security and civilization ; the Italian government would be failing in their most elementary duties if they did not finally withdraw all confidence with regard to Ethiopia, and if they did not reserve to themselves full liberty of action with a view to adopting all measures that may prove to be necessary for the security of her colonies and for the safeguarding of her own interests." Italy, as a civilized nation, he said, could no longer count on the clauses of the Treaty of 1928, or rely on purely judicial guarantees to terminate the perils which threatened her colonies.

6th September.—The League of Nations Council appointed a Five-Power Committee to examine all aspects of the dispute. The members were of British, French, Spanish, Polish, and Turkish nationality—the Spanish member, Señor de Madariaga, presided. Mr. Eden was the British member.

9th September.—The Emperor of Abyssinia expressed readiness to admit foreign experts to assist in developing and administering the country, but emphatically barred Italians.

The Committee of Five decided to appoint a sub-committee of experts to examine the Italian Memorandum and Abyssinia's reply as to the fitness of the latter for League membership.

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[1] The *Popoli d'Italia.*

[2] The Treaty of Uccialli was made between Menelik, King of Ethiopia, and the Italian Government in 1889. It defined the limitations of the boundaries, but in certain other provisions the Italian text appears not to have agreed with the Amharic one. In the former, at any rate, Italy was given what amounted to a protectorate and Menelik agreed to " avail himself of the Italian government for any negotiations which he may enter into with other Powers."

Menelik denounced this treaty in 1893 on account of Italian aggression into Tigré.

BRITAIN'S POLICY.

11th September.—Sir Samuel Hoare, Foreign Secretary, made a long declaration of British Policy at Geneva. He reaffirmed the support of the League by the British Government and the interest of the British people in collective security ; they wished to see a more effective instrument for peace than the old system of alliances. Britain had no selfish or imperialistic motives.

The League, he said, is not a super-state, nor even a separate entity . . . independent of or transcending the States which makes up its membership. The member States have not abandoned the sovereignty that resides in each of them, nor does the Covenant require that they should, without their consent, in any matter touching their sovereignty, accept decisions of other members of the League. They do not act at the bidding of the League, but by virtue of agreements to which they are parties.

The two principal conditions in which the system of collective security is designed to operate are : (1) that armaments shall be reduced to the lowest point consistent with national safety and the enforcement by common action of international obligations ; and (2) that, through the League, there can be a modification of international conditions which might become a danger to peace. Finally there is the obligation to take collective action to bring to an end war resorted to in disregard of the Covenant obligations.

From fear of war, the over-optimistic examples in limitation and reduction of armaments by certain countries, and in particular my own, he said, have not been followed ; and now, from the growing fear of war, the armaments of most countries, and, last of all, my own country, are increasing. So far we have found it impossible to make progress with this part of the League's programme.

The League has lacked the membership of certain powerful nations and has lost the membership of others . . . which introduces an element of uncertainty . . . in the work of organizing and maintaining peace.

The burden of the obligations of the Covenant must be borne collectively ; H.M. Government in the United Kingdom will be second to none in their intention to fulfil these obligations.

We believe that small nations are entitled to a a life of their own and to collective protection. We believe that backward nations, without prejudice to their independence, are entitled to expect assistance by more advanced peoples.

It is not enough to insist collectively that war shall not occur or that, if it occurs, it shall be brought to an end ; something must be done to remove the causes of war . . . the world is not static and, from time to time, changes must be made. Such changes must be made by agreement and not by dictation. As an example there is the matter of the distribution of the world's supplies of raw materials ; this problem is economic rather than political and territorial. H.M. Government would be ready to take their share in an investigation of this question.

The attitude of the British nation towards the Covenant has been clearly demonstrated during the last few weeks. It will not change " so long as the League remains an effective body and the main bridge between the United Kingdom and the Continent remains intact."

France's Dilemma.

13th September.—M. Laval in an address to the Assembly at Geneva reiterated the devotion of France to the League and said that any attack against it would be an attack against her very security. He expressed great satisfaction at the words of the British Foreign Secretary. He referred " with emotion " to the dispute with Italy and the value of Franco-Italian friendship. He hoped that the Council would soon fulfil its role of conciliation.

16th September.—Lloyds marine underwriters gave notice to merchants that existing insurance contracts would cease to provide cover against war risks.

League Peace Proposals.

18th September.—The Committee of Five furnished their recommendations for a basis for negotiations. The chief of these were :—

(1) A police gendarmerie with foreign specialists to enforce law and repress slavery in Abyssinia.

(2) Foreigners to participate in economic development, land ownership, mining, work and industrial enterprises.

(3) Proper control of a State budget.

(4) Reorganization of mixed and native courts, public health and education services, under the auspices of the League. A commission of advisers to report frequently to the Council.

When these proposals were forwarded to the Italian and Abyssinian delegates, they were accompanied by declarations from the British and French governments that they were ready to make certain sacrifices in the region of the Somali coast in order to facilitate territorial adjustments between the rival nations. They also expressed readiness to

recognize Italy's special interest in the economic development of Abyssinia.

20th September.—Abyssinia notified the League that the foregoing proposals were generally acceptable.

22nd September.—Britain assured Italy that the concentration of naval forces in the Mediterranean had no aggressive object. Precautionary measures were the natural consequence of the violent campaign against the United Kingdom in the Italian press. Italy replied that her military preparations in the Mediterranean basin were equally devoid of aggressive motives.

League Solution Rejected by Italy.

Italy rejected the proposals of the Committee of Five because they did not offer a minimum basis for reaching a final settlement.

26th September.—The President of the Council, M. Ruiz Guinazu (Argentine) proposed that, in view of the failure of the Committee of Five, the Council itself should go into committee—the committee to consist of all the members except the parties to the dispute—to " draw up a recommendation " in accordance with Article XV of the Covenant.[1]

This was agreed to, M. Litvinoff remarking very pertinently that the decision " marks the end of a stage of speeches and declarations."

2nd October.—A national mobilization throughout Italy was carried out with much fervour. In a general broadcast Mussolini said : " To economic sanctions we will answer with our discipline and our abstemiousness and our spirit of sacrifice. To military measures we will reply with military measures. To acts of war we will reply with acts of war."

The Emperor of Abyssinia telegraphed to the League reporting that Italy had violated the Ethiopian frontier.

The Outbreak of War.

3rd October.—The League was informed that the Italians had bombed Adowa and Adigrat.

The Emperor proclaimed a general mobilization.

5th October.—The Council of the League appointed a Committee of Six to report whether active aggression had been committed, and if so, who was the aggressor.

Mussolini suggested that there should be a simultaneous cancellation

[1] The essential paragraph decrees that " the Council either unanimously or by a majority vote shall . . . report . . . the facts of the dispute and the recommendations . . . deemed just and proper.

by Britain and Italy of precautionary measures in the Mediterranean. In view of the circumstances prevailing, the British Government could not agree.

7th October.—The League Council adopted the report of the Committee of Six that the Italian government had resorted to war in disregard of its covenants under Article 12 of the Covenant of the League of Nations.

The Council also adopted the historical survey and analysis of the Committee of Thirteen, Baron Aloisi protesting.

It was decided to set up a co-ordinating committee to decide upon the measures of sanctions to be taken against Italy.

9th October.—The League Assembly met. Austria and Hungary both, in effect, declined to be parties to the application of sanctions against Italy. Switzerland, while promising not to fail in her duty " to act in solidarity with the other members of the League," pleaded her " traditional neutrality." The attitude of Albania was doubtful.

Fifty-one out of fifty-four nations voted for setting up a committee " to consider and facilitate the co-ordination of such measures."

12th October.—The British Government informed the League that they would permit the exportation of arms to Abyssinia.

The committees charged with drawing up detailed measures for applying economic sanctions against Italy began work.

16th October.—The British Government declined to reduce the augmented naval forces in the Mediterranean to a normal footing, even if Italy withdrew her additional troops from Libya.

Economic Sanctions.

19th October.—The Co-ordinating Committee of the League resolved to refuse Italian exports and to place an embargo on the supply of certain raw materials and key products to her.

In order to give time for replies from the governments concerned, it was decided that the Committee should wait until 31st October to fix the date of these measures.

Tension between Britain and Italy was somewhat relieved by the British Ambassador at Rome informing Mussolini that H.M. Government had no intention of taking any action in the Italo-Abyssinian dispute beyond their collective responsibilities as members of the League.

Military Sanctions Ruled Out.

23rd October.—Mr. Baldwin, the Prime Minister, in a speech in the House after the reassembly of Parliament, said: "It is impossible in the League as it exists to-day to push sanctions to the extent which seems to be contemplated in speeches which I remember a year ago from the benches opposite. . . . We have no intention of acting by ourselves. . . . We have never had war in our mind."

25th October.—In a broadcast address on the night of the dissolution of Parliament, Mr. Baldwin said: "There are risks to peace . . . risks in the kind of sanctions imposed. If sanctions of the severest kind are imposed, that will lead to blockade, and blockade brings in the question of countries outside the League. . . . I would never sanction this country going into blockade unless we were assured beforehand of the attitude of the United States. . . . With regard to blockade, the brunt of the trouble that may result must fall in the beginning on the British Navy, in conjunction with others if we are fortunate; possibly alone if we are not."

The Prime Minister then drew attention to the existing weak state of the Navy, and emphasized that he could not be responsible for any government in this country at the present time if he was not given power to remedy deficiencies which have accrued in the Services since the War.

Summary.

The record of events, as between the League of Nations and Italy, up to date may be summarized as follows:—

(1) Italy, acting under the influence of vigorous leadership, has—like Japan and Germany—preferred national ambitions to loyalty to the Covenant of the League.

(2) In order to further these ambitions, she has—like Japan—deliberately ignored all existing pacts to "outlaw war," and laid violent hands on the territory of another member of the League. Unlike Germany and Japan, she has not even thought fit to leave the League before challenging its authority.

(3) The League has, once again, been unable to prevent this warlike aggression against one of its own members.

(4) The mere suggestion of forcible intervention by the League Powers against Italy created acute tension in Europe, the danger of an extension of the present hostilities to a much more widespread conflict, and a grave threat to the whole structure of the League and its Covenant.

(5) Lack of unanimous support by the League Powers and latent opposition from some of the most important of them has compelled the Council to rule out all idea of employing military sanctions, and to discard any proposals for direct action against Italy, such as closing the Suez Canal.

(6) It remains to be seen whether economic sanctions—with Italy's immediate neighbours refusing to co-operate, and such major Powers as the United States, Germany, Japan, and Brazil outside the League—will force her to come to terms.

(7) Most important of all, it remains to be seen what will be the outcome of the pressure exerted on Italy by the League and of her military adventure in Abyssinia, in their ultimate effect on the existing political regime in that country. Its complete collapse and a reversion to the communistic tendencies which threatened to engulf Italy before the present regime is not a prospect which can be viewed with equanimity.

One good thing at least has emerged out of the present crisis: it has brought home very forcibly to the Government and people of this country how dangerous has been the policy of neglecting the fighting Services, and how urgent is the need for making good their deficiencies.

ABYSSINIA

By Major E. W. Polson Newman.

GOVERNMENT, in the European sense of the term, does not exist in Abyssinia, and machinery for the prevention of crime only functions in or near the capital. The village has its headman, and the district its sub-governor—an official whose remuneration depends on compulsory labour and the extent to which he can extract taxes from the inhabitants. Governmental force, on the other hand, is dependant on a system by which peasants, trained to some extent in the use of arms, give military service in return for the holding of land. The state machinery of Abyssinia has been described as medieval, but it would not be an exaggeration to compare it with that prevailing in England before the Norman Conquest. The whole system is fundamentally feudal, with heavy oppression of the conquered races within the Empire. As an upholder of slavery, the influence of the Church is paramount, unaffected as it is by the disintegrating movements

which weaken the Churches of other countries. Slaves, who comprise approximately one fifth of the population, are employed in practically every Abyssinian household, including those of priests and court officials. Although most of the slaves are in domestic service, rich landowners also employ them on the land. As the Abyssinians usually consider menial tasks lowering to their dignity, slaves undertake the necessary work. The worst aspect of this system, however, is the amount of slave raiding and slave trading that goes on in the country. Not only are adults enslaved for sale in Abyssinia or across the Red Sea, but caravans of children are snatched from their homes and transported to the coast for embarkation in dhows. While the Emperor has issued numerous edicts in the hope of bringing this practice to an end, it still continues to a slightly diminished extent.

Another evil system is that of the *gabars*, or serfs, who though nominally free, have to submit to degrading conditions of life. This is particularly applicable to some of the Galla and other conquered races whose lands are governed and policed by Abyssinian officials and soldiers. These people live on their own land, but practically become the property of their overlords in numbers varying from two to a hundred, according to the importance of the individual official who has thrust himself upon them. They then have to supply their master's needs in labour, food, etc., to the utmost limit of their resources, with the result that after years of extortion, the cultivators of the land have no incentive to grow more than is absolutely necessary to meet their daily requirements. Yet the Abyssinians possess a fertile country, rich in raw materials; they will not develop it themselves; and they have steadfastly refused to allow any European Power to develop it for them. They cannot, or they do not want to see the benefits which would be derived from European help; what is more, they refuse to recognize the fact that, by shutting their door against an over-populated Europe craving for expansion and sources of raw materials, they must, sooner or later, be committing national suicide. The country most in need of an outlet is Italy, and it is, therefore, with the Italians that the inevitable clash has taken place.

Judging from what the present writer has seen of Italian development and colonization in Libya under most difficult conditions, there is no doubt that the Italians could transform Abyssinia in course of time into a wealthy and prosperous country. There are few cereals, vegetables or fruits which cannot be grown somewhere, and the soil is one of the richest in the world. Almost every grain does well, with two or three crops a year, while cattle and other stock can be raised under favourable conditions. By this means, Italy could be supplied with

sufficient grain and meat to render further Italian imports of these commodities from foreign countries unnecessary. It is estimated (this is not an Italian estimate) that the agricultural areas of Abyssinia, cultivated under modern conditions, would make Italy self-supporting in ten years, and also produce a surplus for export purposes. Moreover, the Abyssinian climate is suitable for the settlement of a European population under healthy conditions, and it is estimated that at least a million Italians could be settled on the land in ten years. It is contended in some quarters that, with native labour, this is a fantastic figure, but the reply is that, if Italians can work side by side with native labour in Libya, they can do so equally well in Abyssinia.

It has long been the custom in Abyssinia for every man to carry firearms, with the result that raiding into neighbouring territories by frontier tribes has become a common form of aggression, ignored if not encouraged by the central government. In many cases these raids are carried out for the purpose of obtaining slaves, while in others the motive seems to have been pure aggression and plunder. This applies to the frontiers of Kenya and the Sudan as well as to the Italian colonies of Somaliland and Eritrea. For many years, it has been increasingly obvious that an armed and warlike Abyssinia can but be a source of danger to her neighbours on all sides. Taking into consideration the lack of government, slavery, the feudal system, and the oppression and depopulation of the conquered territories in the outlying districts, it will be seen that things cannot be allowed to continue as they are.

The Abyssinians are a backward, stubborn, and proud people, and it is useless to imagine that any form of control or guidance by the League of Nations or any foreign Power would be possible without previous conquest. This is abundantly evident from the following facts. Between 1930 and 1934, armed assaults were made on Italian consulates at Harar, Dessie, and Gondar, besides numerous attacks on the consular personnel. A long, uninterrupted series of raids, robberies, and incursions over the frontiers has been carried on, in which bands of armed Abyssinians numbering up to 750 armed men have been involved. While in 1931, 10,000 men, armed with rifles and machine guns, threatened the Italian frontier in the Ogaden ; last year the plunder from one single raid consisted of 3,656 oxen, 546 goats, 17 camels, and 4 donkeys. In Kenya and the Sudan the raiding parties have frequently been several hundred strong, and large numbers of live stock have been carried off. From the time of the now familiar Walwal episode up to the end of May, 1935, ten raids took place into Italian territory, in some of which machine-guns were used. In a raid into the Assab zone last May, 300 armed Abyssinians took part, this raid resulting in the killing of four men and ten women (Italian subjects), while six men and six women were wounded,

five children castrated, and three women and four men carried off as slaves. During the same period there were nine attacks on Italian consular and Legation staffs. If these raids and attacks were not actually encouraged by the central government, no adequate steps were taken to prevent them.

The fighting forces of Abyssinia consist of the Regular Army in khaki uniform; the Government Army dressed in white *shammas*; and the private armies of the important Rases dressed the same as the latter. While the Regulars are armed with modern Mauser rifles, machine guns, and automatic rifles, the others carry any arms which they happen to possess and a miscellaneous collection of ammunition. The most efficient modern weapons are mixed up with arms that saw service in the Franco-Prussian, Russo-Japanese, and Boer Wars; and in many cases the ammunition seems to bear no relationship to the owner's rifle. The Abyssinians are also in possession of field guns and anti-aircraft guns and have a few aeroplanes.

As, however, practically every man of any position in Abyssinia carries arms, and there is almost no system of government or administration, there is no means of knowing either how many men, or how many rifles, are available. In any case, the Abyssinians can march great distances on the minimum of food, and their transport problem is a small matter compared with that of a European army. Moreover, their rapidity of movement is such that they can carry out surprise tactics and enveloping movements in a most alarming manner. But their tactical mobility is somewhat counterbalanced by their strategical immobility. Owing to the lack of railways, roads, and other internal communications, movements of troops from North to South or *vice-versa*, is a very slow process. In modern military technique, as well as in organization and administration, the Abyssinian army is most backward, but this is to some extent made up for by the exceptional fighting quality of the men and the nature of the country in which they have to fight. But one of the most important factors in favour of the Abyssinians is the unsuitability of their country for modern methods of warfare. Aviation loses much of its power when aircraft have to fly at an altitude of at least 12,000 feet in the mountain districts, where there are very few landing grounds. Tanks are little use against a mobile and harassing enemy; and artillery power is considerably reduced by lack of adequate targets.

From all points of view, it is important that the present hostilities should come to an end as soon as possible and that an agreement should be reached giving satisfaction as far as possible to Italy, and at the same time giving some form of compensation to Abyssinia. Besides

jeopardizing the prospects of European security, Italy is expending vast sums of money in East Africa thereby endangering her financial stability, apart altogether from the loss of human life and material. Abyssinia is being stirred up to a frenzy of anti-European feeling with natural repercussions in other parts of Africa, and the amount of arms and ammunition in the country is steadily increasing. The conflict affects British interests in the region of Lake Tana and the Blue Nile as well as with regard to the Straits of Bab-el-Mandeb, while Great Britain is ever desirous that peace should be maintained in all parts of the world. French interests are affected by the threat to the Jibuti - Addis Ababa Railway, as well as by the very difficult position in which the French Government is placed *vis-a-vis* Great Britain on one side and Italy on the other. The conflict also has an unsettling influence in Egypt, where political ties with Great Britain and economic interests with Italy are mixed up with a natural sympathy with Abyssinia, particularly among the Copts whose religion is closely akin to that of the Abyssinian Church. Although the contribution which Lake Tana can make to the waters of the Nile has been somewhat exaggerated, it is obviously in the interests of both Egypt and the Anglo-Egyptian Sudan that this potential source of supply should be safeguarded. Moreover, a conflict between black and white races within the frontiers of Abyssinia and Eritrea has a naturally disturbing effect on the native population of the Sudan.

But the most injurious effect of the present hostilities is to be found in the opportunity presented to discontented European nations for the furthering of their nationalistic political aims by groupings of Powers and methods likely to lead to war. While it is impossible at the time of writing to predict how soon an opportunity for negotiations will occur, there will certainly be a lull in hostilities when the rains start in the Spring. As a result of investigations made in Addis-Ababa, Rome, Paris, and London, where I collected the different opinions of high authorities, it seems that, at present, terms on the following lines are those most likely to find favour generally :—

(1) The dispute to be dealt with by a Three-Power Conference, representative of Britain, France, and Italy, within the League of Nations.

(2) Italy to agree not to advance into Abyssinia beyond a given line, well to the South of Aksum, Adawa and Adigrat, on the condition that Great Britain and France hand over to Italy fertile territories with reasonable climatic conditions elsewhere in Africa.

(3) The Ogaden to go to Italy to give her satisfaction for Walwal and for protective reasons.

(4) An international mandate to be established in Abyssinia on the model of Iraq, in which Italy would be adequately represented; possibly the High Commissioner could be an Italian of high standing, such as the Duke of Genoa.

(5) Disarmament of Abyssinia to reasonable and safe limits.

(6) Some form of compensation to Abyssinia to be agreed upon.

These proposals are based on the principle of satisfying Italian prestige and compensating her for the expenditure of men, money and material, as well as on the limitation of Italian ambitions in Abyssinia in exchange for territories elsewhere suitable for colonization. Italy's withdrawal with nothing to show is out of the question. A Three-Power Conference is favoured by the French, who realize that more can be achieved by this method than by any other. Signor Mussolini is the only man who can really negotiate for Italy. With him it is essential to have Monsieur Laval and Mr. Baldwin. I found the opinion that Great Britain, France and Italy must hold together in this question, strong in French official circles, right through from Addis-Ababa to London. By occupying a northern part of Abyssinia including Aksum, Adowa, and Adigrat, the Italians would be in possession of fertile territory small in relation to the size of Abyssinia; at the same time, they would have the satisfaction of having recaptured the scene of their former defeat at Adowa and of being in possession of the ancient capital at Aksum, which is the traditional home of the Queen of Sheba. It has been suggested that Great Britain might hand over to Italy a part of Kenya adjacant to Italian Somaliland and Abyssinia, and that France should hand over a part of Tunis. As, however, all the districts of Tunis bordering Italian Libya consist of nothing but sand and palm trees, of which Italy has plenty, and the same applies to all other parts of Tunis not yet already colonized by the French or Italians, this proposal is not practicable. It has, therefore, been suggested that possibly Great Britain might exchange with France a further section of Kenya for French territory in West Africa, or elsewhere, and that France might give this to Italy as her contribution. This proposal is considered a means of solution worthy of consideration.

The reason why the Ogaden would have to go to Italy is in order to settle the Walwal incident, which, I was informed by a reliable native authority on the spot, had been engineered by one of the local Abyssinian chiefs not under the Emperor's control. It is also essential that Italian Somaliland should be protected from constant raiding from

this direction. The Ogaden in itself is useless to either country from the point of view of cultivation, as it is entirely composed of sand and umbrella trees. But whoever holds the line of wells, of which Walwal is one, *ipso facto* controls the whole of that district. As Abyssinia has no civilized form of government outside the capital and one or two other centres, and in view of the barbarous application of an antique feudal system to the conquered negro races involving slavery in its worst forms, it has to be admitted that a League of Nations' mandate is essential. I was told that the Emperor would readily accept a British or French mandate, but neither Great Britain nor France are willing to undertake this task involving at least fifty years' work and heavy expenditure of human life, money and material. Italy is, therefore, the only Great Power available and suitable to carry out the work. The Abyssinians, however, refuse to consider an Italian mandate, so that there remains the only alternative of an international mandate with adequate representation of Italy among other Powers. By this means the Emperor of Ethiopia could have considerable powers in his choice of advisers, and the strong military force necessary for policing the country would be a mixed one, thereby avoiding Italian military domination. In order to bring about a solution on these lines, it is essential that Great Britain and France should co-operate to the fullest extent in bringing their influence to bear on the Emperor with assurance that his position will be supported against any attempts to depose him for accepting European influence. If a settlement of this kind is to be successful, steps will have to be taken immediately to reorganize and strengthen the League of Nations, providing it with means of preventing any other Power from following Italy's example.

It is said that Italy's aims in Abyssinia include full control over the depopulated territories occupied by the conquered negro races, with an international mandate over the Amhara peoples of Semitic origin, which would mean virtual domination by Italy over a great part of Abyssinia. While Italy would acquire large areas of fertile territory for colonization and a valuable source of raw materials, as well as protection for her Red Sea colonies, it is as well to mention how it would affect others. As far as the conquered races are concerned, it goes without saying that they would heartily welcome release from the oppression to which they are at present subjected. The Amharas, on the other hand, would resist with all the power at their disposal Italian political influence in any form, and it is estimated by the Italians themselves that it would take fifty years to pacify the country completely and to abolish slavery. The argument that an Abyssinia under Italian control would be a danger to British communications with the Far East and to the water supply of Egypt and the Sudan is rather off-set by the

position of Italy in the Mediterranean in relation to her Red Sea possessions. France, on the other hand, might be only too pleased to see Italy fully occupied for a considerable period at some distance from North Africa.

THE ITALO-ABYSSINIAN WAR

THE following is a diary of the principal events in the Italo-Abyssinian War :—

2nd October.—Abyssinian frontier near Mount Mussa Ali violated by Italian troops.

3rd October.—Italian aircraft bombed Adowa and Adigrat. Troops invaded Agame province. Abyssinia mobilized.

6th October.—Italians captured Adowa and Adigrat. Gerlogubi, on Ogaden front, taken. Dolo previously taken.

11th October.—Troops consolidated line Amba Gherina–Chidammeret–Mount Rais. Debra Sion occupied.

12th October.—Ras Gugsa with 1500 men deserted to Italians. Italians bombed Fort Dagnere (Ogaden front).

14th October.—Aksum Holy City occupied by troops. Hauzein (South of Adowa) occupied.

18th October.—Italian aircraft bombed Makale.

25th October.—Italian Native troops occupied Callofo, the principal centre of the Sliaveli region.

26th October.—Italy reported general advance from Adowa towards Makale.

27th October.—Adi Nefas (in Tigré) occupied by the Italians.

GERMANY AND MEMEL

By MAJOR B. T. REYNOLDS, M.C., late R.A.

THE problem of Memel is a legacy of the Treaty of Versailles. Under Article 99 of that instrument, Germany renounced, in favour of the Allied and Associated Powers, all rights and title over the Memel territory and undertook to abide by any settlement at which those Powers might subsequently arrive in regard to the final sovereignty of the territory and the nationality of its inhabitants. The

territory in question had previously belonged to the Kingdom of Prussia, as part of its inheritance from the Knights of the Teutonic Order. It consisted of the port of Memel and a strip of land about 70 miles long and from 10 to 20 miles broad on the right bank of the River Niemen. The inhabitants numbered some 145,000, the townspeople being principally of German stock and German-speaking, whilst the peasants were Lithuanian by race and language, although sharing their Protestant faith with the Germans of the town. The importance of the territory lay in the port, and the decision of the Peace Conference to separate it from Prussia arose out of a natural desire to provide the newly formed—or rather resuscitated—State of Lithuania with access to the sea. On the other hand, an equally natural hesitation about handing over a German minority to Lithuania led them to take over the sovereignty themselves pending a final decision.

A French High Commissioner was installed, and a garrison of French troops occupied the town, where they remained until early in 1922. In January of that year, Memel was invaded by Lithuanian troops and the High Commissioner and the French garrison driven out after putting up some show of resistance. The Conference of Ambassadors, faced by this *fait accompli*, registered a strong protest at Kovno. Their task, and that of the League, was not made any easier at this juncture by the fact that in 1920 the Poles under Zeligowski had forcibly seized Wilna and a large stretch of Lithuanian territory, and that since then the Lithuanians had been given ample opportunity to reflect on the inefficacy of diplomatic protests not backed by armed force. The Lithuanians flouted international protests as the Poles had done before them, and in February, 1923, the Allies officially recognized the new state of affairs, whilst reserving the right to negotiate as regards the final settlement of the status of the territory. This settlement was ultimately embodied in the Memel Convention signed in May, 1924.

By this instrument, which still holds the field, Lithuania was given juridical sovereignty over the Memel territory, which was constituted an autonomous area and endowed with institutions designed to provide for complete equality as between Germans and Lithuanians. Under the Lithuanian Governor of the territory is a Directorate consisting of a President, appointed by the Governor, and four members, whose appointment is in the hands of the President. Under the Directorate is a Landtag whose members are elected by the suffrage of the inhabitants of the territory. It is laid down that the Directorate can only hold office so long as it retains the confidence of the Landtag, without which it must resign. On the other hand, the Governor, in agreement with the Directorate, has the power of dissolving the Landtag at any

time, with the proviso that new elections must be held within six weeks of such dissolution. The port is recognized as being " of international concern " and is managed by a Harbour Board of three members, one being appointed by the Lithuanian government, one by the Memel Directorate, and one by the League of Nations. The status of Memel under the Convention is guaranteed by the governments of France, Great Britain, Italy, and Japan. The general opinion of impartial observers is that the Convention is workable, given reasonable goodwill on both sides.

Since the Convention came into force, there has been constant friction between the local authorities and the Kovno government. The separation of Memel from Germany has tended to increase rather than to diminish the loyalty of the German inhabitants to the Reich,[1] and the rise of German national feeling that culminated in the advent to power of Hitler in 1932, had the effect of increasing friction to the danger point. Local disputes, often of a minor character in themselves, have tended to assume an exaggerated importance when made the subject of an issue between Berlin and Kovno.

In December, 1934, considerable public interest was attracted to the trial by a Lithuanian military court[2] of 126 members of Nazi organizations in the Memel territory. The trial, which dragged on until March, 1935, resulted in many of the accused being sentenced to long terms of imprisonment and in four death sentences.[3] Various impartial outside observers formed the impression that the trial was a political measure in which the principles of abstract justice did not take first place. The matter gave rise to considerable popular excitement in Germany and movements of German troops in the neighbourhood of the frontier aroused anxiety abroad.

The trial itself was, of course, a matter in which the guarantor Powers had no right to intervene, but the joint representations of the British, French, and Italian governments may have had the effect of mitigating some of the grievances from which the inhabitants felt themselves to be suffering under the terms of the Convention. In any case, new Landtag elections were held on 29th September, 1935, and the polling passed off more quietly than had been anticipated. Out of 29 seats, 24 went to the German parties, thus giving them control of the local government.

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[1] It is only fair to add that the constant activities of German propaganda agencies from inside the Reich have contributed materially to this end.

[2] Since 1926 Martial Law has been in force in Lithuania, and the system of government has approximated to a Fascist Dictatorship.

[3] These have since been commuted.

Although of no great strategical importance in itself, Memel is, nevertheless, situated at a point where the interests of the three principal Baltic Powers, Germany, Poland, and Russia tend to meet. It is obvious that the present state of tension between Germans and Lithuanians in the territory is a constant source of danger. Certain sections of *Mein Kampf* and the works of Rosenberg refer quite explicitly to German expansionist aims in this part of the world and these are frequently openly referred to by Nazi speakers. A colourable pretext for the invasion of Memel could always be found in some chance incident. The seizure of Wilna by the Poles, and of Memel, itself by the Lithuanians, afford dangerous local precedents.

At the moment, the most that can be said is that the danger is less acute than it was. The Polish-German rapprochement has eliminated one source of friction. Latvia and Esthonia, Lithuania's partners in the Baltic Pact, can be relied on to use their influence with Kovno on the side of moderation, as can also Poland, which is closely linked with these smaller Baltic States. It appears unlikely, at the present stage, that Russia has any aggressive intentions in this part of the world.

The future of Memel would thus appear to depend primarily on the course taken by German foreign policy. At the moment this is obscure.

CORRESPONDENCE

[*Correspondence is invited on subjects which have been dealt with in the* JOURNAL, *or which are of general interest to the Services. Correspondents are requested to put their views as concisely as possible, but publication of letters will be dependent on the space available in each number of the* JOURNAL.—EDITOR.]

AN INTERNATIONAL POLICE FORCE

TO THE EDITOR OF THE R.U.S.I. JOURNAL.

SIR,—In last quarter's JOURNAL, Commander Ross writes, at much length and with futuristic idealism, in favour of an International Police Force. This is a notion beloved by those who delight in organizing a new and better world—to their own satisfaction, but with little regard to humanity as it is or to that pride of race and country which many of us, unregenerates, wish to perpetuate.

It was well said in the International Situation section of the February JOURNAL (p. 165), that "this notion should be subjected to the acid test of reality." Within the last four weeks that test has been applied, and the whole conception of an International Police Force, in the present state of the world, has been shown up in all its futility. Even the late W. S. Gilbert could not have created a more piquant situation than that which would have arisen had such a Force existed to-day and included—as presumably it would have—contingents from Britain, France, the Soviet Union, Italy, Austria, Hungary, Switzerland, the Argentine, and last but not least, that other member of the League, Abyssinia; moreover, it would have been hard for the wit of man to have devised a more highly explosive mixture at a time of international crisis.

Actually, it has not been the lack of an International Police Force which has made it impossible to apply "military sanctions" against an "aggressor," but the lack of unity of will amongst those nations who are capable of taking the requisite action. The good will and noble gestures of a lot of little nations are of little practical value if, when the use of force is called for, the Powers who possess the requisite means to exert it are divided, and some are unwilling to contribute their quota.

An International Police Force, to be effective—indeed to exist at all—presupposes that the nations shall have surrendered their individual sovereign rights to a super-State. The League, as it exists to-day, is not a super-State. The United States of America have steadfastly refused to surrender one jot, iota, or tittle of their independence, even to the extent of becoming a partner in the League. Brazil, Japan, Germany, and Paraguay having discovered that membership restricted their sovereign rights—as they conceived them, have walked out. Italy remains in the League, although condemned for violating its Covenant; but this appears to be largely as a protest against the continued membership of Abyssinia and also in order to be on the spot to try and justify her misdeeds.

The Soviet Union is the only important new-comer since the League was first created. Without pursuing the notion of a super-State League any further, who in his senses can imagine the British Empire merging its sovereign rights with Bolshevist Russia ?

No—an International Police Force is one of those dreams which, as it has been aptly said, are " so beautiful until we wake up."

" OBSERVER."

London, *October*, 1935.

THE DEVELOPMENT OF THE AIRCRAFT CARRIER H.M.S. " CAMPANIA "

TO THE EDITOR OF THE R.U.S.I. JOURNAL.

SIR,—The article on " The Development of the Aircraft Carrier," published in your August number, omits mention of H.M.S. " Campania." Surely this Cunard liner, which was the first ocean-going carrier commissioned for service with a fleet, should be included in any such record.

Purchased by the Admiralty in the autumn of 1914, she was gutted, refitted, and reconstructed as a seagoing carrier by Messrs. Cammell Laird and Co., and joined the Grand Fleet at Scapa in April or May, 1915. She carried four " Sopwith " single-seater aeroplanes, which were flown from a flying deck some 90 feet long, and six or eight " Short " two-seater seaplanes for hoisting outboard and flying off the sea.

During the winter of 1916, the flying deck was lengthened to permit of flying the seaplanes from the deck. The seaplanes ran down the deck on wheels attached to their floats, which were dropped into the sea by the pilot as soon as he was clear of the ship. Thereafter, the ship discarded the Sopwith aeroplanes, and carried only " Short " seaplanes (ten or twelve) for fleet reconnaissance and spotting duties.

The provision of a landing deck was precluded by the construction during that winter of a deep well in the after-part of the ship, for storage of a kite balloon.

The development of the large fleet aircraft carrier and the operation of aircraft with the fleet, undoubtedly grew from the design and work of H.M.S. " Campania."

OLIVER SWANN,
Air Vice-Marshal.

Glenfarg, Perthshire,
27th August, 1935.

BATTLESHIP DESIGN

TO THE EDITOR OF THE R.U.S.I. JOURNAL.

SIR,—The design of the battleship outlined in last year's Gold Medal essay [1] is open to criticism on two grounds : first, facts used to support the design are misinterpreted ; and second, there are features in the ship which seem on closer examination to be incompatible with the displacement.

The author selects the 13.5 inch gun : he takes this step because he finds, in the table of particulars of ordnance, a relatively great increase in weight of projectile on going to 13.5 inch calibre from 12 inch. This abnormal increase in weight has

[1] Published in the JOURNAL for May, 1935.

nothing to do with the calibre of gun but is caused by the fact that the 13.5 inch gun is the first medium velocity gun in the table after a set of high-velocity guns. Had it been designed as a high-velocity gun, the projectile would have been proportionally lighter and the increase which decided him would then have been transferred to the next gun—and so on.

The penetrations given in this table are of no practical interest, measured as they are in " inches of wrought iron at the muzzle." We require to know the penetration at action ranges and this will be found to be relatively very much greater for the bigger guns than is suggested by the table, since the heavier shells have a much higher " remaining velocity " than the smaller, for equal muzzle velocities.

The " weights of mountings " convey a most unjust impression of the weight of the 16-inch mounting since this is a " triple " while the others are " twins." The only comment is, however, that it weighs more than twice as much as the 13.5-inch mounting.

The proposed ship has the same thicknesses of armour as H.M.S. " Nelson," and it is intended to save the increased weight, as compared with the armour of the " Dunkerque," by lighter engines. It is well nigh certain that the weight of armour required by the proposed ship would be greater than that of H.M.S. " Nelson " since her turrets are divided between the ends of the ship, while in H.M.S. " Nelson " they are close together. Capital ships usually devote about 30 per cent. of their displacement to armour, which gives an approximate weight for H.M.S. " Nelson " of about 11,000 tons. It seems not unreasonable to suggest that this less efficient armour disposition will increase the weight of armour by some 10 to 20 per cent. and bring it up to 12,000 to 13,000 tons. *Jane's Fighting Ships* gives 10,000 tons as the weight of armour in the " Dunkerque." As she has a very much thinner belt, and as her two turrets are close together, it seems possible that the armour of the proposed battleship would weigh even more than is suggested above. As she is only saving 750 tons on engines (35,000 h.p. at 45 lbs. per h.p.) the account is overdrawn by some 2,000 tons. In other words protection against 16-inch shell cannot be had on 27,000 tons displacement, and we must build bigger to get it. The final ship will then be not unlike a " Nelson " in all but gun power. Why not, then, have a well balanced design and mount 16-inch guns as well as the armour to resist their fire ? To sink the enemy is the best protection and to do that we must penetrate his vitals.[1]

R. I. A. SARELL,

H.M.S. " Revenge," *15th July*, 1935. *Lieutenant R.N.*

NAVAL AIRCRAFT AT THE 1912 REVIEW

TO THE EDITOR OF THE R.U.S.I. JOURNAL.

SIR,—In the article on " Great Naval Reviews " which appeared in the JOURNAL for May of this year, allusion is made to three naval aeroplanes, " one of which actually flew off the deck of the " London." "

As a matter of fact, in spite of the thrilling description of its flight in the next day's *Times*, it did not perform this feat. This aeroplane had one trial flight from

[1] See also an article in this JOURNAL on " Our Next Battleships—The Need for Speed."—EDITOR.

the "London" at Sheerness, and flew to Eastney on the ship's arrival at Spithead. It was while retrieving it from Eastney the evening before the Review that it was damaged alongside the ship just before hoisting in.

I was in the "London" as a Lieutenant for mobilization that year, and on the day in question was sent to embark the machine. Flying was of such slight importance at that time that the only means the fleet and dockyard could provide were a lighter, without any steering gear, in tow of the R.M.A. steamboat belonging to Eastney Barracks, which was in charge of a very excellent sergeant.

We beached the lighter broadside on, and the working party half carried, half wheeled the aeroplane across some planks and lashed it on deck; then we took a pull on the steamboat's grapnel—she had meanwhile laid out her anchor for us—and got in tow again. The wind was getting fresh, and the aeroplane and lighter yawed badly; but it was getting late, so I had to risk the passage between the dolphins in the then-existing line of blocks running from South Parade Pier to Horse Fort. The sergeant-coxswain got us through very skilfully, and all would have been well had not the wind and tide swept us against the ship's side and damaged on of the wings, in spite of the efforts of the men on the net shelf to fend it off. One of the main wing spars was splintered, rendering it impossible for the machine to fly off next day, and the lighter, with machine and pilot, were sent into Fountain Lake for the night.

ROGER BURGES,

London, 20*th July*, 1935. *Commander R.N.*

ARMY RECRUITING

TO THE EDITOR OF THE R.U.S.I. JOURNAL.

SIR,—As a ranker whose children have enlisted or married into the ranks, may I make the following comments on Colonel Lambert's excellent article, "Army Recruiting," in your issue for August.

We confine our recruiting propaganda chiefly to the—now very artistic—posters, and we ignore the anti-soldier and consequently anti-recruiting propaganda for which not only those professing strong "pacifist" views are responsible. For instance, many newspapers, not especially "pacifist" in their policy, give prominence to any case of even minor misconduct or crime by a serving soldier, even though they often ignore more serious cases among men of the other two Services. One popular Sunday paper is particularly bad in this respect. The impression given to the public is that the Army teems with crime—military or civilian. It may be that in the case of the other Services representations are made to the Press, who are always most obliging in these matters, to refrain from publishing reports of any but exceptional cases, because they would reflect unjustly on their personnel as a whole; if so, perhaps the military authorities could do something of the same kind.

The astounding statement was made in the House of Commons about two years ago by the Government spokesman, that we could not investigate a recruit's age because "many men join the Army to make a fresh start in life." This can only be interpreted as meaning that the Army is a refuge for wasters and criminals. Again, magistrates have been known to bind over offenders "if they will join the Army." Surely it should be made clear to the Bench that such men cannot

be accepted in the Service. Then there is the question of false characters: if the present law is inadequate to punish those who give such characters to enable a youth to be accepted as a recruit, cannot a clause be inserted in the Army Act compelling the military authorities to prosecute them?

Colonel Lambert referred to stoppages of pay. Of his two shillings a day, a young soldier draws about ten shillings a week; but on occasions this latter sum is subjected to stoppages not provided for in the Regulations, e.g., troops detailed for a special guard have been compelled to buy a complete new uniform, although the uniform they possess had nothing wrong with it, except that it was not absolutely new. I know of one unit where this was done quite recently, and as a result the men were put so much in debt that many could not afford to take their summer furlough.

I cannot trespass on your space to mention other factors omitted by Colonel Lambert; but may I just say that while experience has taught me that the typical Army officer is at heart everything which he should be, and that he is very good to the individual soldier, yet sometimes he fails to see the necessity for keeping up the prestige of the soldier as a class. I frequently have known officers in private conversation to allow aspersions to be cast on their men without protest; this of itself may do as much harm as if they were personally responsible for such criticism. On the other hand, I have noticed that officers of the Sister Services are quick to resent any criticism of those whom they command.

W. MOORE,
Lieutenant,
late Highland Light Infantry.

London, *3rd September*, 1935.

THE WORK OF THE SLOOPS

TO THE EDITOR OF THE R.U.S.I. JOURNAL.

SIR,—I have read with much interest the account of "The Work of Sloops on Foreign Stations" in the August number. I should like to add the following comments on the historical portion of Captain Blackman's lecture.

The brigantine (or brigandyn) of the time of Charles II was a single masted fore-and-aft craft which carried a lateen (then called brigantine) mainsail. The rig which is now called "brigantine" was not introduced till the early half of the XIXth century. It is not mentioned in James' Naval History (1793–1820.)

I do not know what authority there is for saying that by the beginning of the XVIIIth century sloops included vessels "rigged as snows, brigantines, or ketches." The snow was a two-masted vessel square rigged on both masts—a craft which had some modifications to a brig, e.g., in the eighties, some American naval officers called the training craft "Pilot," "Liberty," etc., brigs; but said that the ironclad "Temeraire" was a snow—because she had no boom to her fore and aft mainsail. I have remarked on "brigantines" above. The only "ketches" used as war vessels which I have come across were bomb or mortar ketches. They generally had two masts, of which one was often considerably shorter than the other, to allow for the trajectory of the bomb when fired on certain bearings.

Sailing sloops of war were either ship or brig rigged; and generally so denominated, i.e., "ship-sloop" or "brig-sloop." They were always commanded by a Commander; whereas the 6th Rates were called "post ships," and commanded by a Post Captain.

When steam came in, sloops were generally barque rigged. When I joined the Service, the definition of a sloop was a vessel which mounted its guns on the upper deck on the broadside, and was commanded by a Commander. Such were the "Seagull," "Acorn," etc., etc. A craft which mounted its guns amidships, e.g., the "Condor" (Lord Charles Beresford's ship at Alexandria), "Flamingo," etc., commanded by a Commander, was called a gun-vessel. Similar craft to the first, but larger, and commanded by Captains, were called corvettes. Smaller craft, commanded by Lieutenants—there were no Lieutenant-Commanders then—were called gun-boats.

O. F. GILLETT,

Southsea, *26th August*, 1935. *Admiral.*

NAVY NOTES

GREAT BRITAIN

A Reconstruction Programme.

During the past quarter, references have been made by various Cabinet Ministers to the need for rebuilding the Navy.

Mr. Neville Chamberlain, Chancellor of the Exchequer, speaking at Floors Castle, near Kelso, on 21st September, said, " We have tried unilateral disarmament in the hope that other countries would follow our example. It has proved to be a complete, a costly, and a dangerous failure. The time has come now when we must face realities, when we must bring our forces up to the minimum required for our own self-respect, when we must recognize that, in this work-a-day world, disarmament must follow and not precede the establishment of a sense of security."

Mr. Baldwin, Prime Minister, speaking at Bournemouth on 4th October, said : " I ask myself whether in the responsibility that falls on me as principal adviser to His Majesty, how far I am entitled to accept fully those obligations (under the League of Nations) without repairing those deficiencies which we have made and for which all of us are responsible in the years since the War. It is a responsibility that I cannot bear, I cannot shoulder, and I do not think His Majesty's Government on examination will be prepared to shoulder."

Naval Conference.

A Naval Conference is to open in London on 5th December. It is understood that the United States, Japan, France, and Italy are accepting the invitation of the British Government to attend.

Flag Appointments.

China Command.—The King has been pleased to approve the appointment of Vice-Admiral Sir Charles J. C. Little, K.C.B., to be Commander-in-Chief, China, in succession to Admiral Sir Frederic C. Dreyer, K.C.B., C.B.E., to date 8th November, 1935, and to assume command about January, 1936.

Deputy Chief of Naval Staff.—The King has been pleased to approve the appointment of Vice-Admiral William M. James, C.B., to be a Lord Commissioner of the Admiralty and Deputy Chief of the Naval Staff in succession to Vice-Admiral Sir Charles Little, to date 29th October, 1935.

The Nore Command.—The King has been pleased to approve the appointment of Vice-Admiral Sir Edward R. G. R. Evans, K.C.B., D.S.O., to be Commander-in-Chief, the Nore, in succession to Admiral Sir Hugh J. Tweedie, K.C.B., to date 3rd December, 1935.

Director of Personal Services.—The Admiralty announce that Rear-Admiral Geoffrey Layton, D.S.O., is to be Director of Personal Services in succession to Rear-Admiral J. F. Somerville, C.B., D.S.O., to date 8th November, 1935. As announced in the August issue of the Journal, Rear-Admiral Somerville is to be Rear-Admiral (D) Commanding Destroyer Flotillas, Mediterranean Fleet, about 1st January, 1936.

AUSTRALIAN SQUADRON.—The Admiralty announce that, with the concurrence of the Australian Government, the appointment has been approved of Rear-Admiral Richard H. O. Lane-Poole, O.B.E., to be Rear-Admiral Commanding, H.M. Australian Squadron, in succession to Rear-Admiral W. T. R. Ford, C.B., to date about April, 1936.

GOVERNOR OF NEWFOUNDLAND.—The King has been pleased to approve the appointment of Vice-Admiral Sir Humphrey T. Walwyn, K.C.S.I., C.B., D.S.O., to be Governor of Newfoundland and in succession to Admiral Sir David Murray Anderson, K.C.B., C.M.G., M.V.O., whose term of office is due to expire next spring.

FLAG RETIREMENTS AND PROMOTIONS.

Vice-Admiral Wilfrid Tomkinson, C.B., M.V.O., was placed on the retired list, to date August 25th. In consequence, the following promotions and retirements have been approved :—

Rear-Admiral Francis L. Tottenham, C.B., C.B.E., is promoted to Vice-Admiral.

Captain Richard H. L. Bevan, D.S.O., M.V.O., A.D.C., R.N., is promoted to Rear-Admiral and placed on the retired list.

Captain John S. G. Fraser, D.S.O., A.D.C., R.N., is promoted to Rear-Admiral and placed on the retired list.

Captain (Commodore 2nd Class) John C. Tovey, D.S.O., A.D.C., R.N., is promoted to Rear-Admiral.

On August 31st, the Admiralty announced that the following retirements and promotions had been approved :—

Admiral Sir Cyril T. M. Fuller, K.C.B., C.M.G., D.S.O., is placed on the retired list, to date August 31st. In consequence :—

Vice-Admiral Sir Eric J. A. Fullerton, K.C.B., D.S.O., M.A., is promoted to Admiral.

Rear-Admiral Sidney R. Bailey, C.B., C.B.E., D.S.O., is promoted to Vice-Admiral.

Captain James S. M. Ritchie, A.D.C., R.N., is promoted to Rear-Admiral and placed on the retired list.

Captain Robert R. Turner, D.S.O., A.D.C., R.N., is promoted to Rear-Admiral.

Vice-Admiral S. R. Bailey was reappointed in command of the Battle Cruiser Squadron on promotion.

On September 13th, the Admiralty announced that, consequent on the vacancy in the Rear-Admirals list caused by Rear-Admiral R. R. Turner, D.S.O., becoming supernumerary to the list on his appointment as Admiral-Superintendent, Portsmouth, on that day, the promotion had been approved of Captain George F. B. Edward-Collins, A.D.C., R.N., to be Rear-Admiral.

On September 17th the Admiralty announced that the following retirements and promotions had been approved :—

Vice-Admiral John K. im Thurn, C.B., C.M.G., C.B.E., is placed on the retired list. In consequence :—

Rear-Admiral Geoffrey Blake, C.B., D.S.O., is promoted to Vice-Admiral, and Captain Brian Egerton, A.D.C., R.N., is promoted to Rear-Admiral.

Rear-Admiral Brian Egerton is placed on the retired list, and in consequence :—Captain Francis T. B. Tower, O.B.E., A.D.C., R.N., is promoted to Rear-Admiral.

The Admiralty announce that the retirement has been approved of Rear-Admiral Fischer Burges Watson, D.S.O., who is placed on the retired list at his own request, to date 17th September, 1935. As Rear-Admiral Watson is supernumerary to the Rear-Admirals list, no vacancy occurs in consequence of his retirement.

The Admiralty announce that, consequent on the vacancy on the Rear-Admirals list caused by Rear-Admiral Clinton F. S. Danby, C.B., becoming supernumerary to the list on appointment as Admiral Superintendent, Chatham, on October 1st, 1935, the following promotions and retirements have been approved :—

Captain Hamilton C. Allen, A.D.C., R.N., is promoted to Rear-Admiral and placed on the retired list.

Captain Hugh H. Rogers, M.V.O., O.B.E., A.D.C., R.N., is promoted to Rear-Admiral and placed on the retired list.

Captain Guy W. Hallifax, A.D.C., R.N., is promoted to Rear-Admiral and placed on the retired list.

Captain (Commodore 2nd class) Alfred E. Evans, O.B.E., A.D.C., R.N., is promoted to Rear-Admiral.

Precautionary Measures.

Early in September, the British Government decided upon certain movements of the Fleet and reinforcements of men and material of the British garrisons in the Mediterranean. On 20th September, the British Ambassador in Rome called on Signor Suvich, Under-Secretary for Foreign Affairs, in order to communicate details of these movements, adding that they were not intended to imply any aggressive intention on the part of H.M. Government. He explained that such measures had been taken as a natural consequence of the impression created by the violence of the campaign against the United Kingdom which had been conducted by the Italian Press during previous weeks. Signor Suvich made an analogous communication and stated that he was authorized to declare to the Ambassador that Italian military preparations in the Mediterranean Basin were of a purely precautionary nature and had no aggressive aims.

The Mediterranean Fleet moved East, and was based on Alexandria and Port Said. H.M.S. " Queen Elizabeth " rejoined at Alexandria after refitting at home, and resumed duty as fleet flagship on 10th October. She took out Air Chief Marshal Sir Robert Brooke-Popham.

Admiral Sir Dudley Pound, who is Commander-in-Chief designate, also arrived at Alexandria on 10th October.

The Battle Cruiser Squadron under Vice-Admiral S. R. Bailey, composed of the " Hood " and " Renown " ; the Second Cruiser Squadron under Rear-Admiral S. J. Meyrick, consisting of the " Orion," " Achilles " and " Neptune " ; and six vessels of the Sixth Destroyer Flotilla arrived at Gibraltar on 16th September. The remainder of the Sixth Flotilla arrived on the 24th. The " Leander " joined the Second Cruiser Squadron from Devonport on 4th October.

The aircraft-carrier " Courageous," flagship of Rear-Admiral Noel F. Laurence, arrived at Alexandria on 7th September.

The " Kempenfelt " and 3rd Division, Second Destroyer Flotilla, also arrived at Alexandria about the same time as the " Courageous." The 4th Division, Second Destroyer Flotilla, arrived at Malta on 19th September.

The " Exmouth " and Fifth Destroyer Flotilla arrived at Haifa on 8th September, and at Alexandria on 4th October.

The " Lucia " and Second Submarine Flotilla arrived at Malta on 12th September. Certain vessels went to Port Said in October and to Aden later in the month.

The " Titania " and certain submarines of the Fifth and Sixth Flotillas arrived at Gibraltar on 9th October.

The seven vessels of the First Minesweeping Flotilla, under Captain V. A. C. Crutchley, V.C., in the " Halcyon," also proceeded to the Mediterranean, arriving at Alexandria from 17th September onwards.

The Minesweeping Training Flotilla (" Garry," " Liffey " and " Dee ") arrived at Malta on 19th and at Alexandria on 29th September. The trawler " Kate Lewis," tender to the " Vernon," arrived at Alexandria on 25th September.

In addition to the foregoing units from home waters, the cruisers of the South American Division also proceeded to the Eastern Mediterranean. The " Exeter," Commodore A. E. Evans, arrived at Alexandria on 29th September ; the " Ajax " at Haifa on 27th September.

From the China Station, the minelayer " Adventure," Captain W. H. Gell, arrived at Haifa on 9th October, and the aircraft carrier " Hermes," Captain the Hon. G. Fraser, arrived at Singapore from Wei-Hai-Wei on 18th September, accompanied by the destroyers " Delight " and " Duchess," from Hong Kong. The " Delight," " Duchess," " Diana " and " Dainty " arrived at Aden on 30th September. The cruiser " Berwick " arrived at Alexandria on 7th October.

From the Australian Station, the cruiser " Sussex," Captain S. S. Bonham-Carter, C.V.O., D.S.O., which had been serving as an exchange cruiser for the " Australia," arrived at Port Said on 8th October. (See also " New Zealand Division.")

Personnel

Howard-Crockett Prize.—The Eardley Howard-Crockett Prize for the best all-round Cadet of each term in the " Frobisher " and at Dartmouth, has been awarded to Cadet F. B. Caldwell, R.C.N., who passed out of H.M.S. " Frobisher " in July last.

Gilbert Blane Medals.—Gilbert Blane Medals for the year 1935 have been awarded to Surgeon Commander A. A. Pomfret, R.N., and Surgeon Commander W. G. C. Fitzpatrick, R.N., on obtaining highest aggregate marks in the examinations for promotion to surgeon commander.

Lower Deck Promotions.—Three ratings—one acting P.O. and two acting L.S.s, were promoted to the rank of acting Sub-Lieutenant to date 1st September, 1935. This total is the lowest since promotion from the lower deck was introduced by Order in Council of 19th July, 1912. Numbers in recent years have been :—1931, 12 ; 1932, 8 ; 1933, 6 ; and 1934, 5.

New Welfare Sections.—From 1st October new Welfare Sections were established at each of the three Home Ports to afford assistance to ratings in any domestic troubles. The staff includes the following ladies :—Portsmouth, Mrs. E. M. Langdon, Admiralty Inspector (Children's Welfare) ; Devonport, Mrs. Sprott, Depot Aid Fund lady worker ; and Chatham, Miss H. Wyon, Deaconess.

Supply of Sound Films.—An organization for the supply of sound equipment and films has been approved by the Admiralty. The allocation of certain trust

moneys in the Board's possession has enabled the scheme to be started on a sound financial basis. The Admiralty Cinema Fund is under the supervision of the Director of Physical Training and Sports. Films will be dispatched by the Distributor of Films to the Royal Navy, 184, Wardour Street, W.1. Equipment and films will be hired by ships and establishments. A three days' course in London has been arranged for ratings to act as operators.

R.N. Benevolent Trust.—Their Lordships have appointed Rear-Admiral Dudley B. N. North, C.B., C.S.I., C.M.G., C.V.O., Commanding H.M. Yachts, to be President of the R.N. Benevolent Trust, in succession to Admiral the Hon. Sir Herbert Meade-Fetherstonhaugh, G.C.V.O., C.B., D.S.O., to date 31st August, 1935.

Naval Sailing Association.—It is proposed, with Admiralty approval, to form a Naval Sailing Association to encourage sailing throughout the Service. Particulars may be obtained from Lieutenant-Commander T. B. Brunton, R.N., Royal Naval Barracks, Portsmouth.

Canteen Trading Surplus.—The sum of £5,135 5s. is available for distribution in respect of surplus revenue accruing to the Navy, Army, and Air Force Institutes from naval canteen trading during the year ended 3rd November, 1934. Following the arrangements adopted in previous years, 40 per cent. of this amount has been allocated to the R.N. Benevolent Trust, £300 to the Union Jack Club, and the remainder to commands for distribution to improve recreational facilities.

Civil Employment for Officers.—The fourth annual report of the R.N. and R.M. Officers' Civil Employment Committee, for the period ended 31st July, 1935, showed that 113 permanent and 20 temporary posts were found, the total of 133 comparing with 103 for the previous year. The officers concerned included 5 Lieutenants and 43 Lieutenant-Commanders, 28 Commanders, 13 Captains, 9 Engineer Lieutenants, 6 Paymaster Commanders, and 5 Paymaster Captains.

New Construction.

The 1935 Programme.—Tenders were invited in October for certain of the vessels of the 1935 construction programme, at present unnamed. The programme includes the following:—

Three cruisers ("Southampton" type)—one at Devonport, and two by contract. On 22nd October the Admiralty announced that, subject to the settlement of certain points of detail, they had decided to entrust the construction of the two "Southampton" class cruisers of the 1935 programme to Messrs. Hawthorn, Leslie and Co., Limited, Hebburn-on-Tyne, and the Fairfield Shipbuilding and Engineering Company, Limited, Govan, Glasgow. These were the first contracts to be awarded in connection with the 28 vessels of this programme.

One leader and eight destroyers—all by contract. On 31st October, the Admiralty announced that orders for two destroyers each will be given to:—John Brown and Co., Clydebank; Hawthorn, Leslie and Co., Hebburn-on-Tyne; J. Samuel White and Co., Cowes; Yarrow and Co., Scotstoun, Glasgow. The flotilla leader will be built by Cammell Laird and Co., Birkenhead.

Three submarines (one minelayer, one "P" or general service and one "S" or patrol type)—one at Chatham, and two by contract.

One submarine depot-ship—by contract.

Four sloops (three minesweeping and one convoy sloop)—two at Devonport, and two by contract.

One surveying ship—by contract.

Seven small vessels (two coastal sloops, one small minelayer, two gate vessels and two trawlers)—all by contract.

THE 1934 PROGRAMME.—All four cruisers of this programme are now under construction. They were laid down—the "Aurora" at Portsmouth on 23rd July, 1935; the "Birmingham" at Devonport on 18th July, 1935; the "Sheffield" at New Walker, by Vickers-Armstrongs, on 31st January, 1935; and the "Glasgow" by the Scotts' Shipbuilding Company, Greenock, on 16th April, 1935.

The keel of the aircraft-carrier "Ark Royal" was laid at Birkenhead by Messrs. Cammell, Laird and Co., Ltd., on 16th September, 1935.

All the destroyers and submarines of the 1934 programme are now on the stocks. The last of the submarines, H.M.S. "Sunfish," was laid down at Chatham Dockyard on 22nd July.

THE 1933 PROGRAMME.—The first cruiser of this programme, H.M.S. "Penelope," was launched by Messrs. Harland and Wolff, Belfast, on 15th October.

The flotilla leader "Grenville" and destroyers of the "Greyhound" type have been launched at various dates since 22nd July, 1935, when the "Glowworm" was put afloat at Southampton. The last of the group, H.M.S. "Grenade," was due to be launched on 12th November.

The submarine "Narwhal" was launched at Barrow by Vickers-Armstrongs, Ltd., on 29th August. The "Seawolf" is due to be launched at Greenock by the Scotts' Shipbuilding and Engineering Co., Ltd., on 28th November.

THE 1932 PROGRAMME.—H.M.S. "Galatea," first of the three cruisers of this programme, commissioned on 14th August with a navigating party for acceptance trials. She completed to full crew on 3rd September under Captain W. L. Jackson, D.S.O., for service in the 3rd Cruiser Squadron, Mediterranean Fleet, and left for her station early in October. Later in that month, however, it was decided that the "Galatea" should replace the "Despatch" as flagship of the Rear-Admiral (D), Mediterranean Flotillas, who with his Flag-Captain and staff transferred to her on 15th October at Alexandria.

H.M.A.S. "Sydney," built for the Australian Government under the 1932 programme, left the Tyne yard of Messrs. Swan Hunter and Wigham Richardson for Portsmouth on 24th September. (See "Royal Australian Navy.")

PRESENTATION TO THE "LONDONDERRY."—A silver salver for the new sloop "Londonderry," Captain H. B. Jacomb, was presented on 25th September at the Irish Chamber, Guildhall Yard, London, by the Honourable the Irish Society. A proposed visit of the sloop to Londonderry from 2nd to 4th October to receive a silk white ensign and bronze plaque from the citizens had to be cancelled. The vessel left Devonport on the 30th September for the Red Sea to replace the "Hastings."

PRESENTATION TO THE "DEPTFORD."—The new sloop "Deptford," Commander C. F. B. Bowlby, D.S.C., visited Deptford on 27th and 28th August. At a special meeting of the Deptford Borough Council the Mayor presented a shield to be awarded annually to the member of the ship's company taking first place at athletics. The "Deptford" arrived at Aden on 22nd September.

MISCELLANEOUS.

NAVY WEEK.—Rear-Admiral H.R.H. the Duke of York, on 3rd August, opened "Navy Week," 1935, with a speech from the starboard cathead of H.M.S. "Victory."

He hoped that the popularity of the Silver Jubilee Naval Review would be an incentive to the public to take a fuller and larger interest in Navy Week, and that Portsmouth and its two sister ports would all have record attendances.

The Duke's hope was fulfilled, as the aggregate attendances beat all others by about 18,000. Totals for the week were :—Portsmouth, 161,832 ; Plymouth, 82,247 ; Chatham, 88,928 ; total, 333,007.

DEPUTY SECRETARY, ADMIRALTY.—Mr. J. S. Barnes, C.B., O.B.E., has been appointed Deputy Secretary of the Admiralty from 1st January, 1936, on the retirement from that office of Sir Vincent W. Baddeley, K.C.B.

THE " HASTINGS " REFLOATED.—The sloop " Hastings," which ran aground on 11th June off Suakin, was refloated in September and arrived at Suez on 22nd September, towed by salvage tugs and manned by a skeleton crew. She entered dry dock for temporary repairs before going to Malta.

ROYAL MARINES

PROMOTIONS.—Colonel Commandant (temporary Brigadier) W. W. Godfrey, C.B., C.M.G., is promoted to Major-General (5th October), from which date Colonel 2nd Commandant A. G. B. Bourne, D.S.O., M.V.O., is promoted to be Colonel Commandant ; Lieutenant-Colonel T. L. Hunton, M.V.O., O.B.E., to be Brevet Colonel and appointed Assistant Adjutant-General, Royal Marines (vice Bourne) ; Major E. L. N. Bishop (Barrack Master) to be Lieutenant-Colonel (Barrack Master), and Major J. G. Johnstone to be Lieutenant-Colonel. Brigadier A. G. B. Bourne succeeded Major-General Godfrey in command of the Portsmouth Division of the Corps.

GUARD DUTIES IN LONDON.—A battalion of the Royal Marines under Lieutenant-Colonel T. L. Hunton carried out guard duties at the Royal Palaces in London during the absence of the Guards on manœuvres between 17th August and 19th September. On the last-named date it exercised the ancient privilege of the Corps by marching through the City with colours flying, bayonets fixed, and drums beating. At the City boundary, near Temple Gardens, the battalion was challenged by the City Marshal, who on being informed of the identity of the troops conveyed to the commanding officer the permission of the Lord Mayor to proceed.

UNIVERSITY ENTRANTS.—Two vacancies are now being offered half-yearly for the nomination of graduates for commissions in the Royal Marines from the principal universities. The first candidates entered under this plan are now undergoing training at Deal. Though older than direct entry officers, these university candidates obtain an ante-date on completion of their training which will bring them into line with those who enter direct.

DOMINION NAVIES

ROYAL AUSTRALIAN NAVY

COMPLETION OF THE " SYDNEY."—The cruiser " Sydney " arrived at Portsmouth on 25th September from her builders' yard at Wallsend-on-Tyne. On 1st October, Captain J. U. P. Fitz-Gerald and officers and ratings of the ship received a civic welcome from the Lord Mayor of London at Guildhall, and were entertained to luncheon by the Corporation. Later in the month the cruiser left Portsmouth for overseas.

ROYAL CANADIAN NAVY

DESTROYER CRUISES.—Cruises have been made during the summer by all four destroyers of the R.C.N., the "Skeena" and "Vancouver" from Esquimalt and the "Saguenay" and "Champlain" from Halifax.

PROMOTIONS.—Lieutenant-Commander W. B. Creery, commanding the "Champlain," was promoted to Commander from 1st August; and Lieutenant-Commander H. T. N. Grant, Director of Naval Reserves, Ottawa, received a similar promotion. Both were to fill vacancies in the complement of officers of the R.C.N.

NEW ZEALAND DIVISION

CRUISER LOANED FOR SPECIAL SERVICE.—Mr. Forbes, the New Zealand Prime Minister, on 16th October announced in the Dominion Parliament that the cruiser "Diomede," Captain C. M. Graham, had been detailed for service under the British Admiralty at the request of the British Government. He trusted that the departure of the vessel as a purely temporary measure would not give rise to mischievous rumours as to the Dominion being likely to be involved in war.

ROYAL INDIAN NAVY

ARRIVAL OF THE "INDUS."—The new sloop "Indus," Commander E. M. Bayfield, arrived at Bombay on 1st September to join the R.I.N., which now numbers nine ships, the others being the "Dalhousie," depot-ship; sloops "Clive," "Cornwallis," "Hindustan," and "Lawrence"; patrol boat "Pathan"; surveying ship "Investigator" and trawler "Madras."

FOREIGN NAVIES

FRANCE

NEW BATTLESHIP.—The new 35,000 ton battleship was due to be laid down at the Basin de Salout at Brest in October. According to press reports this vessel will have engines of 151,000 h.p. giving her a speed of 30 knots.

THE "DUNKERQUE."—The battleship "Dunkerque" was floated out of the dry dock in which she had been building at Brest on 1st October. The dock being too short to take the full length of the hull—691 feet, the main portion—652 feet, was towed to Ninon docks, where the work of adding the remaining 39 feet is proceeding.

The armament of the "Dunkerque" will include eight 33 c.m. (13-in.) guns, in two four-gun turrets; sixteen 15.5 c.m. (6.1-in.) guns; twelve 10 c.m. (3.9-in.) guns; twelve 3.7 c.m. (4-in.) guns; and six torpedo tubes.

MODERNIZATION OF BATTLESHIPS.—The battleship "Lorraine" has been modernized. The centre turret has been replaced by a catapult and stowage for two aircraft. Other modifications are similar to those carried out in the "Provence" and "Bretagne," i.e., improved protection and increased elevation of the main armament, oil-fired boilers, etc. It is stated that these ships may now be capable of a speed of 23 knots.

"B" CLASS CRUISERS.—A third ship of the "La Galissonnière" type, the "Jean de Vienne," was launched on 31st July, a fourth, the "Gloire," on 28th September, and a fifth, the "Montcalm," on 26th October. These are vessels of 7,600 tons armed with nine 6-in. guns in triple turrets, eight 3.5-in. A.A. guns and

four 21-in. torpedo tubes. They are fitted with a catapult and carry four seaplanes. The engines develop 88,000 h.p., and give a speed of 32.5 knots.

NEW SUBMARINES.—The submarine " Junon " was launched at the Augustin Norman shipyard at Havre on 16th September—the third within six months. She is one of the second class vessels of 597 tons, 223 ft. long, with 14 knots surface and ten knots submerged speed, and armed with one 3-in. gun and eight tubes.

PERSONNEL.—According to an article in the French press, the fleet is seriously undermanned. The writer states that the personnel amounts to 60,000 men, of which 7,000 are required for coast defence and the *Aeronautique Maritime*. Of the remainder he says about 13,000 are employed ashore, leaving only 40,000 for the sea-going ships. He estimates that 10,000 more men are required—8,000 for service afloat, and 2,000 for the *Aeronautique Maritime*.

CHANNEL SQUADRON. — The battleship " Lorraine " is due to join the " Provence " and " Bretagne " in the 2nd (Channel) Squadron. In addition to this battle squadron, the force has lately been augmented by the addition of the 5th Destroyer Division of three ships, and is shortly to be further increased by the mine-laying cruiser " Emile Bertin " which will act as flagship of the Rear-Admiral Contre-Torpilleurs. It is also reported that it is to be still further strengthened by the addition of some or all of the new " B " class cruisers and contre-torpilleurs.

GERMANY

NAVAL MANŒUVRES.—Manœuvres were held in the North Sea from 9th September, and were marked by the presence of the first submarines since the war. Six of these took part—" U.1," " U.2," " U.3," " U.4," " U.7," and " U.8," the vessels having been commissioned between 29th June and 13th August.

The manœuvres were preceded by tactical training in the Baltic. Herr Hitler proceeded by air to Kiel on 26th August to witness gunnery practice.

A strategical exercise which was to have taken place from the 17th to 20th September was interfered with by the stormy weather.

VISIT TO POLAND.—The German cruiser " Königsberg " arrived at Gdynia on 22nd August on an official three days' visit to Poland, in return for the visit of Polish destroyers to Kiel earlier in the year. This was the first German naval visit to Poland.

OVERSEAS CRUISES.—It was notified that cruises abroad would be made by three vessels for the purpose of affording deep sea training to naval cadets. The cruiser " Karlsruhe " was ordered to leave Kiel on 21st October for the Mediterranean, Indian ports, China, Japan, the Philippines, the Dutch Indies, the Red Sea and Spain, returning on 13th June, 1936. The " Emden " was ordered to leave on 23rd October for the Azores, West Indies, Central America, Mexico and Canada, returning on 12th June, 1936. The battleship " Schlesien " was ordered to leave on 16th December, to visit six Spanish and Mediterranean ports, the Canaries, and the Cape Verde Islands, returning on 29th February, 1936.

GREECE

VISIT TO TURKEY.—A squadron composed of the cruiser " Helle," flagship of Admiral Sakelariou, five destroyers, and three submarines, with seven seaplanes,

arrived at Constantinpole on 22nd September on a four days' official visit. Although individual Greek ships had visited Turkish ports previously, this was the first official visit of a Greek squadron. It was regarded as a token of appreciation of Turkey's friendly attitude during the Greek revolt in March last.

DESTROYER PROGRAMME.—At the end of August the Minister of Marine submitted to General Kondylis, acting Prime Minister, a programme for the acquisition of four destroyers of from 960 to 1,050 tons, to be built abroad. Two submarines may also be ordered.

ITALY

EAST AFRICA COMMAND.—In the *Official Gazzette* of 12th September, it was announced by Royal decree that the Italian naval squadron, together with the land and air forces in Italian East Africa, had been placed under the command of the High Commissioner for East Africa, General de Bono, " in the event of special contingencies of a colonial character or of hostilities of any kind."

NEW CRUISERS.—The " Montecuccoli " laid down in 1931 has completed her trials on which she is reported to have reached a speed of 39.5 knots. Her sister ship the " Muzio Attendolo " was due to leave San Marco Yard by the end of July. The " Filiberto Duca D'Aosta " has completed trials, on which she attained a speed of 38 knots. Work on the " Duca degli Abruzzi " is well advanced, and she is due to be launched in January, 1936.

Construction generally was progressing at a normal speed at the end of the summer.

NEW SUBMARINES.—The Ministry of Marine has ordered the immediate construction of ten submarines, all of which are due to be laid down by the end of this or early next year.

The submarine " Finzi " was launched on the 29th June, the " Tazzoli " and " Otario " are nearing completion, the " Calvi " and " Glauco " have been completed. The " Pietro Micca " commenced trials in July. With the passing into service of the " Calvi," " Finzi," " Tazzoli" and " Pietro Micca," Italy will have completed 22 submarines in a period of eighteen months.

NEW TORPEDO BOATS.—The torpedo boat " Spica " has joined the fleet and the " Astore " has completed her trials on which she attained a speed of 35 knots. The " Perseo " was launched at Fiume on the 9th August. These are a class of six vessels of 615 tons armed with three 3.9 in. guns. They are reported as being good sea boats in spite of very light construction.

TARGET SHIP.—The old cruiser " San Marco " has been converted into a wireless controlled target ship, and firing was carried out at her for the first time in August.

BRITISH MEDALS RETURNED.—Admiral Giuliano Pini, Deputy Chief of Staff in the Italian Navy, has returned to the British Government medals awarded him in appreciation of his helping to defend British Somaliland against attacks by Mullahs in 1902–1904.

JAPAN

NEW CONSTRUCTION.—The third destroyer of the Second Replenishment Plan " Yamakaze " has been laid down at the Uraga Dock Company's Yard, and a fourth vessel, the " Suzukaze," on 7th July.

The cruiser type submarine " I.6," laid down in October, 1932, has been completed. With a displacement of 1,900 tons she is reported to be armed with two 5-in. gins and six torpedo tubes. Her speed is stated to be 17 knots.

TYPHOON CASUALTIES.—During a typhoon off the East coast of Japan on 26th September, four destroyers, the " Yugiri " (completed 1930), " Hatsuyuki " (completed 1929), " Kidudzuki," and " Mutsuki " (completed 1926) were so severely damaged that they were withdrawn from the grand manœuvres in which they were taking part. An officer and 52 men were reported missing

NORWAY

NAVAL ESTIMATES.—The Estimates for 1935–1936 amount to a total of Kr. 11,561, 700, as compared with Kr. 10,748,600 for 1934–5. The vote for new construction amounts to Kr. 2,640,000 and provides for two new torpedo boats and two small patrol vessels of 200 to 250 tons and the repair of the Fishery Protection gunboat " Fridtjof Nansen."

NEW CONSTRUCTION.—Two new torpedo boats are building at the Horten Naval Yard. Electric welding is being employed to save weight, and each craft will carry three 10 cm. guns as well as 53 cm. torpedo tubes. The engines are designed to develop 12,500 h.p. giving a speed of about 30 knots. The first of these boats is due to be launched this autumn and should be ready next Spring.

POLAND

NAVAL DEFENCE FUND.—The Sea and Colonies League handed over a sum which it had collected of approximately £99,750 to the Naval Defence Fund for the construction of naval units. This will be devoted to building the submarine " Marshal Pilsudski."

SOVIET UNION

DEFENCE ESTIMATES.—According to a German report, the Defence Estimates for 1935–36 show a further increase on those for the previous year when 1,660,000 roubles was voted, but actually rose to five milliard roubles. The estimates for previous years, in million roubles were : 1933–34, 1,420 ; 1932–33, 1,372 ; 1931–32, 1,132 ; 1928–29, 930 ; 1926–27, 692 ; 1922–23, 244. The same report stated that the number of submarines had increased by 435 per cent. since 1931, smaller torpedo boats by 370 per cent., and the air force by 330 per cent.

LOSS OF A SUBMARINE.—The submarine " B.3 " was lost on the 25th July as the result of a collision during manœuvres in the Gulf of Finland. The entire crew of 48 and 7 cadets were drowned.

WRANGEL'S FLEET.—The long standing dispute as to the ownership of Wrangel's fleet of ex-Russian warships, which have lain at Bizerta for a number of years, has been terminated by a statement of the French Ministry of Marine that all the vessels have been broken up with the exception of one battleship for which, so far, no adequate offer has been made. The proceeds of the sales have been paid into a fund known as the *Séquestre des Biens Russes* in a department called the *Administration des Biens Droits et Intérêts Russes en France.*

SPAIN

VISIT TO PLYMOUTH.—Five submarines, " C1 " to " C6," visited Plymouth from 13th to 17th August. Capitan de Fragata Don Francisco Guimera was in command of the flotilla.

SWEDEN

NAVAL ESTIMATES.—The Estimates for 1935–36 amount to Kr. 39,666,380. which is over Kr. 4,000,000 more than the vote for the previous year, and Kr. 8,500,000 more than that for 1933–34. The principal increases are for victualling, clothing, etc., personnel and manning, and replacement building.

ORGANIZATION.—The Coast Fleet is now organized as follows:

First Battleship Division: 3 coast defence ships.
First Destroyer Division: 3 destroyers.
Submarine Section: 4 submarines and a depot ship.
Submarine Chasing Section: 2 destroyers and 2 vedette boats.
Flying Section: Observation Division of 9 aircraft and a depot ship.

UNITED STATES

1936–37 BUILDING PROGRAMME.—The Secretary of the Navy, Mr. Swanson, has announced that next year's naval building programme will include twelve 1,500-ton destroyers, six submarines, and possibly a battleship.

Under the treaties, no capital ships can be laid down before 1st January, 1937, on which date seven of the battleships will be over-age and can be replaced. The Navy, however, does not desire to lay down more than one in 1937, as this will be in the nature of an experimental ship.

NEW CONSTRUCTION.—Bids were opened on the 7th August for the construction of one light cruiser, one aircraft carrier, eight leaders and destroyers, and three submarines, by private firms. The remaining ships of the programme—one light cruiser, seven destroyers, and three submarines, are to be built in Navy Yards.

The Secretary of the Navy has called attention to the beneficial effects on unemployment of an orderly systematic building programme. "Not only," he stated, "are the coastal shipyards directly benefiting, but industries diffused throughout the nation are assisted by our revival in naval building. It is estimated that 80 per cent. of the funds appropriated for the purchase of naval vessels and aircraft go directly into the pockets of the labourers who handle the material. . . ."

NEW AIRCRAFT.—Contracts totalling over eight-and-a-half million dollars have been placed for the purchase of sixty aircraft for the Navy. These are flying boats of the "P.3.Y." type built by the Consolidated Aircraft Corporation of Buffalo. They are designed for patrol work and are an improvement on the "P.2.Y." type which made the formation flight from San Francisco to Pearl Harbour in January, 1934.

FLEET EXERCISES.—President Roosevelt utilized the new cruiser "Houston" for his return from a West Coast trip in October, and in her he witnessed naval exercises in which 130 ships were engaged. During the exercises the "Houston" was attacked by torpedoes, by submarines, and then with bombs from naval aircraft from the carrier "Ranger," the machines diving from a height of 20,000 ft. Destroyers attacked the "Houston" through smoke curtains dropped by aeroplanes. The "Houston" is fitted as a relief flagship of the U.S. Fleet.

FIRE IN THE "QUINCY."—A fire occurred on board the new cruiser "Quincy" on the 7th August, and is reported to have caused many thousand pounds worth of damage. This ship was launched on the 19th June and was due for completion on the 9th January, 1936.

ARMY NOTES

HOME

Appointments and Promotions.

H.M. the King has approved of the following appointments :—

Aides-de-Camp to the King.—Colonel (temporary Brigadier) E. A. Beck, D.S.O. ; Colonel (temporary Brigadier) H. L. Haughton, C.I.E., C.B.E., Indian Army ; Colonel (temporary Brigadier) C. E. Edward-Collins, C.I.E., Indian Army ; Colonel (temporary Brigadier) F. W. Bullock Marsham, D.S.O., M.C.

Colonel Commandants, Royal Engineers.—Lieut.-General Sir Hugh J. Ellis, K.C.., K.C.M.G., K.C.V.O., D.S.O. ; Major-General R. N. Harvey, C.B,. C.M.G., D.S.O. ; Major-General Sir Henry F. Thuillier, K.C.B., C.M.G. ; Major-General G. Walker, C.B., C.B.E., D.S.O.

Colonels of Regiments.—As Colonel 10th Royal Hussars (Prince of Wales's Own) ; Colonel (honorary Brigadier-General) the Viscount Hampden, G.C.V.O., K.C.B., C.M.G.

As Colonel, The Royal Warwickshire Regiment—Colonel (temporary Brigadier) C. T. Tomes, D.S.O., M.C.

Chief of the Imperial General Staff.—General Sir Cyril J. Deverell,, G.C.B., K.B.E., *p.s.c.*, Colonel, The West Yorkshire Regiment, to be C.I.G.S. from April, 1936.

General Deverell joined the West Yorks in 1895 and was Adjutant of his battalion. He was promoted Brevet Lieut.-Colonel in 1916 and reached his present rank in 1933.

He served on the Staff in India from 1908 to 1914, was Brigade Commander in France in 1915, and was appointed to the Command of the 3rd Division in 1916, remaining with it until 1919.

He was Divisional Commander from 1919 to 1921 on the Rhine and at home ; he then returned to India where he held in succession the appointments of District Commander, Q.M.G. in India, and C.G.S., India. He has been G.O.C. in Chief, Eastern Command, since 1933 and is A.D.C. General to the King.

Eastern Command.—General Sir W. Edmund Ironside, K.C.B., C.M.G., D.S.O., *p.s.c.*, Colonel Commandant, R.A., to be G.O.C. in Chief, Eastern Command, from April, 1936.

General Ironside was appointed to the R.A. in 1899 and saw active service in the South African war. He served on the Staff in South Africa from 1908 to 1912 and went to France in 1914, remaining there until 1918. Promoted Brevet Lieut.-Colonel in 1916 and Brigadier-General in 1918 ; he went to Archangel as Major-General in 1918, becoming G.O.C. in Chief there in 1919.

Appointed, in succession, to be Chief of the British Military Mission to East Hungary, Commander of the North Persian Force and Commandant of the Staff College, Camberley ; he was promoted to Lieut.-General in 1931. He has been Q.M.G. in India since 1933.

The War Office also announces the following appointments:—

G.O.C. British Troops in China.—Major-General A. W. Bartholomew, C.B., C.M.G., C.B.E., D.S.O., *p.s.c.*, to be G.O.C. the British Troops in China from the end of 1935.

Major-General Bartholomew joined the R.A. in 1900, promoted Brevet Lieut.-Colonel in 1917, he reached his present rank in 1932. His war services include France 1914 to 1917 and Italy 1918. He has held many appointments on the General Staff, has been A.D.C. to the King, and has lately held the appointment of Inspector of R.A., the War Office.

G.O.C. Third Division.—Major-General C. P. Heywood, C.B., C.M.G., D.S.O., *p.s.c.*, to be Commander of the 3rd Division, with effect from April, 1936.

Major-General Heywood was commissioned to the Coldstream Guards in 1899; having been Adjutant of his Battalion, he received his promotion to Brevet Lieut.-Colonel in 1917. Taking part in the South African War, in which he was wounded, he then served with the Egyptian Army from 1907 to 1909, seeing active service again in the Soudan in 1908. In the Great War he served in France from 1914 to 1918 and Russia in 1919. He has been A.D.C. to the King and his last appointment was Director of Staff Duties at the War Office.

Brigadier E. K. Squires, D.S.O., M.C., is appointed Director of Staff Duties at the War Office from April, 1936.

Major-General A. F. Brooke, D.S.O., to be Inspector of R.A. with effect from November, 1935.

Colonel H. C. Dibben to be Director of Veterinary Services, A.H.Q., India, with effect from February, 1936.

Colonel D. Cree, M.C., to be Chief Engineer, Scottish Command, with effect from 1st March, 1936.

Lieut.-Colonel A. H. Allen, C.B.E., R.A.O.C., to be an Assistant Director of Ordnance Services, at the War Office, to date from 1st January, 1936.

Lieut.-Colonel F. H. Witts, D.S.O., M.C., The King's Own Royal Regiment (Lancaster) to be A.Q.M.G., Aldershot Command, with effect from 8th November, 1935.

Lieut.-Colonel R. M. Wootten, M.C., The Queen's Bays (2nd Dragoon Guards), to be A.Q.M.G. British Troops in Egypt, with effect from October, 1935.

Colonel O. A. Walker, R.A.O.C., to be an Assistant Director of Ordnance Services and an A.A.G., the War Office, to date from 10th March, 1936.

Lieut.-Colonel F. W. Beall, O.B.E., A.M.I., Mech.E., R.A.S.C., to be an Assistant Director of Supplies and Transport, and an A.A.G., the War Office, with effect from 24th May, 1936.

Major and Brevet Lieut.-Colonel R. B. Pargiter, R.A., to be G.S.O. (1st Grade), the War Office, from 21st January, 1936.

Colonel C. D. Rawson, D.S.O., to be Brigadier, General Staff, Northern Command, India. Colonel Rawson will take up the appointment as soon as possible.

Colonel A. S. Archdale, D.S.O., to be Commander, R.A., 42nd (East Lancashire) Division, (T.A.,) to date from 1st October, 1936.

Lieut.-Colonel F. G. Beaumont-Nesbitt, M.C., Grenadier Guards, to be Military Attaché to H.M. Embassy at Paris, from the end of 1935.

Colonel T. J. Hutton, M.C., to be G.S.O. (1st Grade), 1st Division, Aldershot Command, with effect from 21st January, 1936.

Lieut.-Colonel J. A. Churchill, M.C., The Durham Light Infantry, to be an Instructor at the S.O.S., Sheerness, with effect from 15th October, 1935.

Lieut.-Colonel A. A. Cummins, R.A., to be Proof and Experimental Officer, Research Dept., Royal Arsenal, Woolwich, from 1st March, 1936.

Major A. L. Collier, M.C., The Queen's Own Cameron Highlanders, to be Deputy Assistant Military Secretary, the War Office, from 14th January, 1936.

Lieut.-Colonel A. F. V. Jarrett, M.C., R.A., to be Chief Instructor (Commandant) Coast Artillery School, from 1st November, 1935.

Major and Brevet Lieut.-Colonel J. G. Halsted, M.C., to command the 1st Battalion, The Loyal Regiment (North Lancashire) from 19th July, 1935.

Lieut.-Colonel H. J. Segrave to command the 1st Battalion, The Wiltshire Regiment (Duke of Edinburgh's), from 2nd October, 1935.

Major-General W. J. N. Cooke-Collis, C.B., C.M.G., D.S.O., to be G.O.C., Northern Ireland District and to date from 17th September, 1935.

Colonel L. Manton, D.S.O., O.B.E., to be Chief Engineer, Malta, from November, 1935.

Brigadier A. H. Hopwood, D.S.O., to be Commander, Tienstein Area, with effect from 27th September, 1935.

Lieut.-Colonel C. R. Britten, M.C., to command the 3rd Battalion, the Grenadier Guards, from 1st September, 1935.

Lieut.-Colonel N. E. Weatherall, O.B.E., to command the 7th Queen's Own Hussars, with effect from 14th September, 1935.

Major-General W. G. S. Dobbie, C.B., C.M.G., D.S.O., to be Commander, Malaya, from December, 1935.

Lieut.-Colonel R. L. McCreery, M.B.E., M.C., to command the 12th Royal Lancers (Prince of Wales's), with effect from 6th September, 1935.

Lieut.-Colonel H. R. Gadd, D.S.O., M.C., to command the 2nd Battalion, The Suffolk Regiment, from 21st August, 1935.

Lieut.-Colonel A. E. Hawkins to command the 1st Battalion, The Dorsetshire Regiment, with effect from 15th August, 1935.

Major J. T. Godfrey, R.E., to be Military Attaché to H.M. Embassy at Warsaw and to H.M. Legations at Riga, Helsingsfors, and Tallinn, from October, 1935.

The Rev. B. K. Bond, M.C., Chaplain to the Forces, 2nd Class, to be Senior Chaplain to the Forces (C. of E.), Catterick Camp, Yorks., from 1st August, 1935.

The Rev. N. G. Railton, M.A., to be Senior Chaplain to the Forces (C. of E.), Gibraltar, from 3rd October, 1935.

Colonel W. P. MacArthur, D.S.O., O.B.E., M.D., D.Sc., F.R.C.P.I., R.A.M.C., to be Major-General and to date from 26th September, 1935.

Brevet Colonel J. G. des R. Swayne, to command the 1st Battalion Royal Northumberland Fusiliers, from 12th September, 1935.

Lieut.-Colonel E. D. Fanshawe, to command the Queen's Bays (2nd Dragoon Guards) with effect from 3rd October, 1935.

Lieut.-Colonel H. S. Pinder, M.C., to command the 1st Battalion The Leicestershire Regiment from 3rd August, 1935.

Colonel M. Kemp-Welch, D.S.O., M.C., to be Commander 12th Infantry Brigade, with effect from 29th July, 1935.

Colonel H. C. Ponsonby, D.S.O., M.C., to be Commander 6th Infantry Brigade, from 1st October, 1935.

Colonel W. G. Holmes, D.S.O., to be Commander 8th Infantry Brigade.

Major-General A. J. McCulloch, D.S.O., D.C.M., to be G.O.C. in Malta, with the local rank of Lieutenant-General.

Brevet Lieut.-Colonel L. S. Lloyd, M.C., to command the 3rd Carabiniers (Prince of Wales's Dragoon Guards), to date from 4th October, 1935.

Colonel (temporary Brigadier) F. S. Thackeray, D.S.O., M.C., to command the British Troops in Cairo, with the temporary rank of Major-General and to date from 5th October, 1935.

The following appointments have been made to the Army in India :—

Major-General W. L. O. Twiss, C.B., C.B.E., M.C., to be Commander Burma Independent District.

Colonel N. C. Bannatyne, C.B., C.I.E., to be Major-General, from 13th July, 1935.

Colonel B. T. Wilson, D.S.O., to be Commander, Lahore Brigade Area.

Major-General G. M. Lindsay, C.M.G., D.S.O., to command the Presidency and Assam District with effect from 17th September, 1935.

Major-General H. J. Huddleston, C.B., C.M.G., D.S.O., M.C., to command the Baluchistan District and to date from 17th September, 1935.

Colonel A. H. Evans-Gwynne, D.S.O., to be Commandant, Senior Officers' School, Belgaum.

Lieut.-General Sir John Brind, K.B.E., C.B., C.M.G., D.S.O., to be Adjutant-General in India, with effect from April, 1936.

Major-General Sir Douglas Baird, K.B.E., C.M.G., C.I.E., D.S.O., to be G.O.C. in Chief, Eastern Command.

Major-General Sir Arthur Moens, K.C.B., C.M.G., D.S.O., Colonel, 2nd Battalion (Sikhs) 12th Frontier Force Regiment, to be Q.M.G. in India, from April, 1936.

Major and Brevet Lieut.-Colonel R. N. O'Connor, D.S.O., M.C., The Cameronians, to be Commander, the Peshawar Brigade.

General.

Alliances.—H.M. the King has been graciously pleased to approve of the following alliances :—La Regiment de Joliette, Non-Permanent Active Militia of Canada, to the Oxfordshire and Buckinghamshire Light Infantry ; and 23rd/21st Battalion, Australian Military Forces, to the Royal Scots Fusiliers.

Staff College.—Major H.R.H. the Duke of Gloucester, K.G., K.T., K.P., G.C.M.G., G.C.V.O., 10th Royal Hussars, will join the Staff College, Camberley, in January, 1936, as a student.

Officers' R.A.M.C.—Special provision has been made for Majors, R.A.M.C., whose promotion to Lieut.-Colonel had been unduly delayed. Army Orders for July, 1935, explain the new conditions.

QUEEN ALEXANDRA'S IMPERIAL MILITARY NURSING SERVICE.—The scales of pay, retired pay and gratuities have been increased and improvements have been made in the conditions of service. Details are given in Army Orders for August, 1935.

BREN GUN.—The Lewis gun is to be replaced by a new light automatic, made in Czecho-Slovakia, known as the Bren. The new weapon is six pounds lighter than the Lewis, fires about 600 rounds per minute, and will be manufactured at Enfield.

TROOPING.—The trooping season began on 10th September and five transports will be employed. The " Neuralia " will be replaced, later in the season, by a new B.I. ship, the " Dilwara," which will have a speed of fifteen knots.

AIR DEFENCE.—An air defence exercise was held at Portsmouth in August, 1935. The troops taking part belonged to the Territorial Army and were carrying out their annual training. Raids were carried out by No. 10 (Bomber) squadron R.A.F., and the public co-operated with the local authorities in " blacking out " the threatened area. The exercises revealed certain weak points and provided useful lessons for the future.

ROYAL TOURNAMENT.—The Royal Tournament, held in May at Olympia, yielded a profit of over £18,000. This sum, which exceeds the surplus of 1934, has been handed over to charities connected with the three Services.

R.A. UNITS.—The 6th Anti-Aircraft Brigade R.A., has been formed from 6th September, 1935, and consists of H.Q. and 12th and 16th Anti-Aircraft Batteries, R.A.

The 11th, 12th and 17th Light Batteries, R.A., now in India, are returning in the S.S. " Somersetshire " early in 1936, to Norwich.

On arrival, they will be converted into mechanized Field Batteries.

CAVALRY.—Further progress in mechanization of Cavalry units is to be made with the ultimate object of forming a mechanized Cavalry Brigade.

RECRUITING.—Over 6,000 recruits were obtained, during the quarter ending 30th September, for the Regular Army. This figure, compared to the corresponding quarter last year, shows a slight decrease.

FOOT GUARDS.—The 2nd Battalion, Grenadier Guards and the 1st Battalion, Scots Guards have gone to Egypt, while the 3rd Battalion, Grenadier Guards will return home. The additional Guards' unit will relieve the 1st Battalion, the Middlesex Regiment, which is under orders for Singapore.

COMMISSIONS.—The July Passing-Out List for the Royal Military Academy and the Royal Military College shows that 64 Gentlemen Cadets of the Third Class at the Royal Military Academy, and 168 Gentlemen Cadets of the Senior Division at the Royal Military College qualified for appointment to Commissions in the Regular Army and Indian Army.

The following are Medallists and Prize winners :—

R.M.A. WOOLWICH.

Senior-Under-Officer J. R. Rawlence awarded the Sword of Honour and prize for Physical Efficiency.

Under-Officer J. C. C. Ellison awarded the King's Medal, Tombs Memorial Prize, Armstrong Memorial Prize, Brian Phillpotts Prize, and prize for Workshops and Car Mastership.

Corporal B. Atkinson awarded prize for Riding (Bridle).

Corporal E. M. Hall awarded the Pollock Medal, Rainy Anderson Prize and prize for Tactics.

Corporal H. K. Milward awarded the Agar Memorial Prize and prize for Map Reading, Field Sketching, Drawing and Field Works.

Corporal J. S. de C. Smithwick awarded the Benson Memorial Prize.

R.M.C. SANDHURST.

Senior-Under-Officer G. E. Pike, awarded the Sword of Honour.

Junior-Under-Officer N. Crookenden awarded the King's Medal and Sword.

Junior-Under-Officer A. G. Hiatt awarded the Norman Medal, and prizes for Mechanical Engineering (2nd) and Physical Training (2nd).

Corporal J. A. Comyn awarded prizes for Tactics (1st) and Military Law (2nd).

Junior-Under-Officer M. C. T. Hogg awarded prizes for Tactics (2nd), Military History (1st), Economics (1st), and Modern Economic History.

Corporal J. E. Ridsdale awarded prize for Economics (2nd).

ARMY MANŒUVRES.

(See p. 805 of this Journal.)

MALTA

The garrison has lately been strengthened; additional artillery units have arrived and the infantry increased to five battalions.

EGYPT

NEW INFANTRY BRIGADE.—A new infantry brigade is to be formed; under the command of Colonel (temporary Brigadier) J. H. T. Priestman, D.S.O., M.C., at Alexandria.

ANGLO-EGYPTIAN PARADE.—A joint Anglo-Egyptian naval and military parade took place on 11th October at Alexandria. Sir Miles Lampson, the High Commissioner, Admiral Sir William Fisher, the Commander in Chief, Mediterranean, and high Egyptian officials took the salute.

The troops included detachments from the Royal Navy and the Royal Marines, the 1st Battalion Royal Ulster Rifles and units of the Egyptian Army, the total amounting to about 3,000.

INDIA

EXPEDITION AGAINST THE MOHMANDS.—The Government of India decided in September last to despatch a military force to Kamalai, a point about forty miles North of Peshawar.

The object of the expedition was to impose terms on the Mohmands, who have been creating serious disorders on the frontier. Four infantry brigades are being employed, 2nd (Rawalpindi), 3rd (Jhelum), and the Peshawar and Nowshera Brigades, amounting with ancillary troops and services to over 20,000 men.

The operations have been progressing smoothly under the command of Brigadier C. J. E. Auchinleck, whose troops have reached Kamalai. The Nahakki Pass,

which is a " key " position, was taken by the 2nd Battalion Highland Light Infantry with only a few casualties. Light tanks were employed and valuable assistance was given by the R.A.F. The Queen Victoria's Own Corps of Guides, while engaged in a reconnaissance West of the Nahakki Pass, encountered superior bodies of tribesmen and fierce fighting took place, in which both sides lost heavily. Further operations are in progress.

FINANCE.—That the cost of two British Divisions in India should be borne by H.M. Government was the subject of a resolution, on 24th September, in the Council of State. After a debate, during which Sir Philip Chetwode, Commander in Chief in India, pointed out that H.M. Government was already contributing £1,500,000 to the cost of Indian defence, the resolution was withdrawn.

MARCHES.—The regimental marches and trumpet calls of the new Indian Regiment of Artillery have been decided upon. " The British Grenadiers " will be in use for dismounted parades and the R.A. slow march for mounted parades.

TERRITORIAL ARMY

ADMINISTRATION.—In view of the increased responsibilities which have devolved upon the Territorial Army and the closer co-operation between formations of the Regular and Territorial Armies, it has been decided that the existing organization within the War Office for the administration of the Territorial Army should be changed, and that it should follow the same lines as that adopted for the Regular Army.

The responsibility for all military services (including works services) concerning the Territorial Army, with which the Parliamentary Under-Secretary of State for War is at present charged, will accordingly be transferred to the appropriate Military Member of the Army Council. Such a re-allocation of responsibility within the War Office will secure the advantage that each Member of the Army Council will have, within the sphere for which he is responsible, the same immediate responsibility for the Territorial Army as he has at present for the Regular Army.

The change will take effect on 1st October, 1935.

RECRUITING.—During the month of July, 1935, 2,019 recruits were taken on the strength. This is a decrease of 837 recruits compared with the number taken on the strength in June last, but is 83 more than in July, 1934.

The number of recruits obtained in each Command during July was as follows:—Eastern Command, 305; London District, 239; Northern Command, 515; Scottish Command, 114: Southern Command, 348; and Western Command, 498.

The total strength of the Territorial Army (other ranks) on 1st August, 1935, was 124,631: this is 175 less than on 1st July, 1935, and a decrease of 2,093 compared with the strength on 1st August, 1934.

The number of officers on 1st August, 1935, was 7,209; this is an increase of 56 during the month and the number is 2,096 short of establishment.

APPOINTMENTS.—The War Office announces the following appointments:—

Lieut.-Colonel the Rt. Hon. the Viscount Halifax, Secretary of State for War, to be Honorary Colonel of the Yorkshire Dragoons (Queen's Own).

Major C. Vaux, M.C., to command the Northumberland Hussars.

Major L. V. S. Blacker, O.B.E., to command the 58th (Home Counties) Field Brigade, R.A., from 15th July, 1935.

Major Hon. D. G. Fortesque, M.C., T.D., to command the 96th (Royal Devon Yeomanry) Field Brigade, R.A., with effect from 1st October, 1935.

Major A. M. Guild, D.S.O., to command the 4th/5th (Dundee and Angus) Battalion, The Black Watch (Royal Highland Regiment), from 3rd October, 1935.

Major W. Philip, M.C., to command the 4th Battalion (The City of Aberdeen) The Gordon Highlanders, (T.A.)

Major F. M. M. Bawden, M.B.E., to command the 4th/5th Battalion The Duke of Cornwall's Light Infantry (T.A.) with effect from 4th September, 1935.

Major-General G. C. Kelly, D.S.O., to be Commander, the 49th (West Riding) Division (T.A.), from 1st September, 1935.

TRAINING.—The 161st (Essex) Infantry Brigade (T.A.), in camp this year at Shorncliffe, sent parties of N.C.O.s each day for physical training to the Regular Army Physical Training centre. This was an experimental measure, which may have important results on the general physical fitness of the T.A.

CAMPS.—The chief camps were held in August, at Marlborough, Corfe Castle, Salisbury Plain, Weymouth, Catterick, Scarborough, Beverley and Redcar.

The numbers attending were satisfactory and amounted during the month to about 60,000 of all ranks.

KING'S PRIZE.—168th Battery, Kent and Sussex Heavy Brigade R.A., shooting with 9.2-in. guns at Plymouth, won the King's Prize. 187th Battery, Durham Heavy Brigade, was second.

LONDON REGIMENT.—Major H.R.H. the Duke of Gloucester, 10th Royal Hussars, officially opened, on 12th October, at Hackney, the new headquarters of the 10th London Regiment.

FOREIGN

FRANCE

UNIFORM.—The " horizon blue " uniform of the Army is to be done away with. The new uniform will have an open-neck greatcoat, with turned-down collar, for the infantry and low collars and ties for the cavalry, and will be khaki. The " Kepi" for the various arms will be of different colours, while the troops on the North-East frontier will wear a khaki " beret " and those on the South-East a blue " beret."

REORGANIZATION.—Another cavalry division has been converted into a light mechanized division. Five infantry regiments, seven battalions of the Chasseurs Alpin, two artillery regiments, one engineer regiment, and one battalion of tanks have been reorganized and redistributed among the North-Eastern defensive zones.

MANŒUVRES.—Army manœuvres were held early in September, East of Rheims. Three mechanized divisions (including one cavalry division) were engaged. General Gamelin, C.G.S., accompanied by Marshal Badoglio, C.G.S., of the Italian Army, attended the exercises. Marshal Badoglio was appointed Grand Officer of the Legion of Honour.

GERMANY

Germany has the most up-to-date army in Europe, according to an article in the *Bulletin Belge des Sciences Militaires* by Commandant Defraiteur.

The German doctrine of war, he says, is that decisive victory will be obtainable only by a complete and overwhelming surprise. Standing armies only will be employed and there will be no time for the preliminary mobilization of masses of men. Small and very mobile forces with powerful armament and ultra-modern equipment will drive in the enemy's covering troops, disorganize his mobilization plans, and destroy his military and economic centres. Outflanking movements will be a waste of time and enemy defences must be overwhelmed by rapid and smashing frontal attacks.

The material with which this war will be waged will consist of chemical weapons, mechanized troops, armoured cars, tanks and aircraft.

The future German Army will be organized, according to the *Militar Wochenblatt*, in three main groups :—

No. 1 *Group* will consist of mechanized and armoured forces, armoured cars, tanks and aircraft and will be known as " Storm Divisions."

No. 2 *Group*, formed of troops in lorries and mechanized artillery, escorted by tanks, will be styled " Mobile Divisions."

No. 3 *Group* will consist of troops of the 1918 model, marching on foot or on horseback, called " Defensive Divisions."

Nos. 1 *and* 2 *Groups* will include mechanics and technicians in regular employment, instantly available, and will be formed chiefly of highly trained serving soldiers. *No.* 3 *Group* will be raised by calling up, for general mobilization, all available trained soldiers and reservists.

The numbers of trained technicians required to maintain mechanized forces in a high state of efficiency has been the subject of special study and an allowance has been made of forty-five men per light tank and fifty per aeroplane.

The mobility demanded of *No.* 1 *Group* is really astonishing, the General Staff insisting upon marches of 150 miles per day at fifteen miles per hour. *No.* 2 *Group* (lorries) is expected to cover 200 miles per day at twenty miles per hour. The frontages on which both " storm " and " mobile " divisions will operate amount to twelve miles (minimum) and the depth to twenty miles.

No. 3 *Group* will mobilize as quickly as possible and will move by train and by road in rear of *No.* 2 *Group*, with the object of occupying and consolidating the territory gained by *Nos.* 1 and 2 *Groups*. If the enemy gets his blow in first, *Nos.* 1 and 2 *Groups* will form the rear-guard and will delay his advance with a view to a counter-offensive later, while *No.* 3 *Group* occupies defensive positions covering " key " points.

Defence against a surprise attack by tanks, is, says Commandant Defraiteur, a chief preoccupation of the Belgian General Staff. A.T. weapons, however, should always have an advantage over tanks owing to their relative cheapness. But A.T. guns will have to be numerous and well protected by armour, while their crews must consist of first line troops. The defensive zone must be carefully studied and note taken of thick hedges, deep ditches, woods and water obstacles.

The defensive organization will be in great depth and should withstand, if well organized and instantly ready, the first onrush of enemy tanks.

ITALY

SHIELDS.—The Army has been experimenting with mechanized forces, including infantry, equipped with portable steel shields, in lorries. According to *The Times*

these shields, which are rectangular in shape, with a loophole, are large enough to cover a rifleman in the prone position.

MILITIA.—Signor Luigi Russo, Prefect of Forli, has been appointed, in place of General Terezzi, who is under orders for East Africa, to be C.G.S. of the Blackshirt Militia.

EAST AFRICA.—The numbers of troops steaming East through the Suez Canal, during the period 1st February to 1st October, exceeds 190,000. About twenty large passenger ships are being regularly employed between Italy and East Africa, as trooping ships.

MANŒUVRES.—Important Army Exercises were held at the end of August, in the Bolzano area. The forces were divided into the Red (Northern) Army and the Blue (Southern) Army—the "Reds" having invaded Italy through the Brenner Pass; the total on both sides exceeded 200,000.

The mechanized division "Trento" was employed and has been described as "a twelve-mile column of steel and noise." Signor Mussolini was in supreme command of the manœuvres and H.M. the King of Italy took the salute at the march past.

SOVIET UNION

RANKS.—Official ranks and grades of seniority on pre-War lines have been introduced by the Soviet Government into the higher ranks of the Red Army. The old titles of Marshal, Colonel, Major, Captain, and Lieutenant are to be taken into use forthwith.

TANKS.—The method of employment of Soviet tanks in the attack has been the subject of an article in the *Revue d'Infanterie* by the Polish Commandant Bien. Russian theories, on the employment of tanks, he says, differ from those of other Powers. Their aim is the protection of the attacking infantry by the simultaneous neutralization or destruction of all weapons comprising the fire power of the defence.

The tanks are organized in three *Groups*—No. 1 for distant action, No. 2 for close support, and No. 3 for immediate support (escort) of infantry. The objectives of *No. 1 Group* are the enemy's artillery, any A.T. guns in its immediate path, rear H.Q., and rear organizations. Its material consists of the fastest medium tanks available, capable of moving up to twenty-five miles an hour, weighing sixteen to twenty tons, and armed with one small calibre gun and three to five M.G.'s. The allotment of these tanks is on the basis of one section (five tanks) to each objective. The method of employment envisages attacks on the enemy's artillery at the moment when its own infantry crosses the starting line.

The staff work and time calculations for this tank attack will naturally have to be very thorough and exact. The enemy's artillery will be attacked, when possible, from a flank, while its fire will be neutralized by smoke bombs, dropped from the air. C.B. work will be the chief feature of the artillery, detailed to support the attack of *No. 1 Group*. Communication will be by W/T (one set per section) using the same length as and keeping close touch with the C.B. group of artillery.

The procedure for *No. 2 Group* will be different. Its objectives will be the M.G.'s of the defence, A.T. guns in its zone, and battalion and brigade reserves. Its material will consist of light tanks, weighing from five to six tons, capable of speeds up to twenty miles per hour, and armed with one small calibre gun or two M.G.'s. The allotment will be at the scale of one company per infantry brigade. The

group will be under orders of the Divisional Commander. It will precede the attacking infantry at timings, which will require the most minute calculations.

No. 3 *Group* will have as its objective any fire which is holding up its own infantry. The smallest and lightest tanks, armed with one or two M.G.'s, will form this group. The allotment will be on the basis of one section (or more) per attacking battalion. The tanks will be under command of O.C.s battalions. These tanks will closely accompany the infantry, will attack any A.T. guns not already silenced, and will clean up trenches and strong points.

The group of artillery supporting the tanks, will, before the attack is launched, neutralize or destroy enemy A.T. guns and will do C.B. work. During the attack it will neutralize dangerous areas or tank proof localities and will, when observation permits, give direct supporting fire. Boldness and the taking of risks are the key-note of Soviet tank doctrine.

SWEDEN

INSTRUCTORS.—Four Swedish officers, now serving as instructors in the Abyssinian Army, have been recalled by their government. They have, however, applied for their discharge from the army as they intend to fight for Abyssinia.

AIR NOTES

ROYAL AIR FORCE

Air Aide-de-Camp to the King.

His Majesty the King has approved the appointment of Group Captain Leckie, D.S.O., D.S.C., D.F.C., as additional Air Aide-de-Camp in succession to Group Captain T. E. B. Howe, A.F.C., who has been appointed Air Attaché to His Majesty's Embassy at Washington.

Appointments.

The following appointments have taken effect as from the dates shown :—

Air Commodores :—J. E. A. Baldwin, D.S.O., O.B.E., to Department of Air Member for Personnel, Air Ministry, on appointment as Director of Personal Services ; to date 22nd August, 1935. J. C. Quinnell, D.F.C., to Headquarters, No. 1 Air Defence Group, on appointment as Air Officer Commanding ; to date 22nd August, 1935.

Group Captains :—R. Collishaw, D.S.O., O.B.E., D.S.C., D.F.C., to R.A.F. Station, Upper Heyford, to command ; to date 31st August, 1935. C. O. F. Modin, D.S.C., to H.Q., Western Area, Andover, on appointment as Senior Air Staff Officer ; to date 12th August, 1935. W. V. Strugnell, M.C., to R.A.F. Station, Manston, to command ; to date 10th August, 1935.

Retirements.

Air Commodores.—A. W. Bigsworth, C.M.G., D.S.O., A.F.C., and E. D. M. Robertson, C.B., D.F.C., at their own request.

Group Captains.—C. L. Colbran, O.B.E., L.D.S., placed on retired list. J. H. A. Landon, D.S.O., O.B.E. ; E. R. Manning, D.S.O., M.C. ; and R. B. Maycock, O.B.E., retired at their own request.

Honours and Rewards.

In addition to the Honours and Awards recorded in last quarter's Air Notes, the following was published in the *London Gazette* dated 26th July, 1935 :—

G.C.V.O.—Marshal of the Royal Air Force Hugh Montague, Baron Trenchard, G.C.B., D.S.O. ; to date 20th July, 1935.

Royal Air Force Expansion.

The following is a resumé of the steps which have already been taken to give effect to the Government's decision, reported in last quarter's Notes, to increase the strength of the Home Defence Units of the Royal Air Force :—

New Stations.—Sites for the following twenty new stations have been acquired :—

Cranfield	(S.W. of Bedford).
Church Fenton	(W. of Leeds).
Debden	(S.E. of Duxford).
Eastburn	(nr. Driffield, S.W. of Bridlington).
Feltwell	(Norfolk).
Finningley	(S.E. of Doncaster).

Harwell	(Berkshire).
Hemswell	(Lincs.).
Hullavington	(Wilts.).
Marham	(Norfolk).
Montrose	(Scotland).
Manby	(Lincs.).
Odiham	(Hants.)
Shawbury	(nr. Shrewsbury).
Scampton	(Lincs.).
Stradishall	(Suffolk).
Ternhill	(Salop).
Thorney Island	
Upwood	(N. of Wyton, Hunts.).
Wyton	(Hunts.).

In addition, it is the intention to locate three of the six additional Armament Training Camps at Chesil Beach, Dorset; Hellsmouth, Carnarvonshire; and Luce Bay, Scotland.

Additional Service Flying Training Schools, where advanced instruction in flying will be given, are being formed as under :—

School and Location.	*Date to Commence Formation.*
No. 7 Flying Training School, Peterborough	2nd December, 1935.
No. 8 Flying Training School, Montrose	1st January, 1936.
No. 9 Flying Training School, Thornaby	2nd March, 1936.
No. 10 Flying Training School, Ternhill	1st January, 1936.
No. 11 Flying Training School, Wittering	1st October, 1935.

AIRCRAFT ORDERS.—Orders for additional aircraft of the various types detailed below have been placed with constructors :—

Firm.	*Aircraft Ordered.*	*Type.*
Sir W. G. Armstrong Whitworth Aircraft Co.	Hart Trainers..	Training.
Vickers Aviation	" " ..	"
Bristol Aeroplane Co.	Audax	Army Co-op.
A. V. Rose & Co.	"	" "
Bristol Aeroplane Co.	Bristol Type 142	Bomber, medium.
Fairey Aviation Co.	Hendon.. ..	Bomber, heavy.
Handley Page	Heyford ..	Bomber, heavy.
Gloster Aircraft Co.	Gladiator ..	Fighter (S.S.).
Gloster Aircraft Co.	Gauntlet ..	Fighter (S.S.).
Hawker Aircraft	Hind	Bomber, light.
A. V. Roe & Co.	Anson	Gen. Reconn.
A. V. Roe & Co.	Hector	Army Co-op.
A. V. Roe & Co.	Tutor	Training.
Saunders-Roe	London	Flying Boat (general purpose).
Short Bros.	Singapore ..	Flying boat (C.R.)
Vickers (Aviation)	G. 4/31 Monoplane	Bomber, medium.
Westland Aircraft Works	Wallace	Bomber, light.
Supermarine Aviation Works (Vickers) ..	Stranraer ..	Flying boat (general purpose).
General Aircraft	Fury	Fighter (S.S.).
Boulton Paul Aircraft	Demon	Fighter (2–S.).

AB INITIO TRAINING.—Contracts have been placed for the *ab initio* training of new pilots to be undertaken at the following Civil Flying Schools :—

Firm.	*Location of School.*	*Commencing Date.*
Air Service Training, Ltd.	Hamble	In existence prior to expansion scheme.
The de Havilland Aircraft Co., Ltd. ..	Hatfield	,, ,,
North Sea Aerial & General Transport, Ltd.	Brough	,, ,,
The Bristol Aeroplane Co., Ltd. ..	Filton, Bristol	,, ,,
Flying Training, Ltd.	Hanworth	10th June, 1935.
Brooklands Aviation, Ltd.	Sywell, Northants.	,, ,,
The de Haviland Aircraft Co., Ltd. ..	White Waltham, nr. Maidenhead	18th November, 1935.
Phillips & Powis Aircraft, Ltd.	Woodley, nr. Reading	25th November, 1935.
Reid & Sigrist, Ltd.	Desford, Leicester.	,, ,,
The Bristol Aeroplane Co., Ltd. ..	Yatesbury, Wilts.	6th January, 1936.
Air Service Training, Ltd.	Ansty, nr. Coventry	,, ,,
Airwork, Ltd.	Perth	27th January, 1936.
Scottish College of Aviation, Ltd. ..	Ayr	February, 1936.

RECRUITING.—Considerable enthusiasm to serve in the Royal Air Force has been evinced during the six months following the announcement of the Expansion Scheme, and the following brief review gives the approximate recruiting position to date :—

Pilots.—From a total of about 17,000 initial inquiries, over 6,000 solid applications have emanated, out of which some 600 have actually been accepted for service.

Airmen.—As a result of nearly 120,000 inquiries for particulars of conditions of service, more than 30,000 solid applications have been received and over 6,000 applicants have so far been accepted.

ORGANIZATION.

NEW SQUADRONS.—Under the Royal Air Force Expansion Scheme, the following new Squadrons commenced formation on the dates shown and were placed under the A.O.C.-in-C., Air Defence of Great Britain, in the Western Area :—

Unit.	*Station.*	*Date.*
No. 97 (Bomber) Squadron	Boscombe Down	16/ 9/35.
,, 214 ,, ,,	Boscombe Down	16/ 9/35.
,, 38 ,, ,,	Mildenhall ..	16/ 9/35.
,, 102 ,, ,,	Worthy Down	1/10/35.
,, 215 ,, ,,	Upper Heyford	7/10/35.

No. 48 (General Reconnaissance) Squadron will form at Bicester on 25th November, and will be placed under the command of the A.O.C.-in-C., Air Defence of Great Britain, in the Central Area.

The three additional Auxiliary Air Force Squadrons for which provision is made in the scheme will be constituted as follows :—

No. 609 (West Riding) (Bomber) Squadron.
No. 610 (County of Cheshire) (Bomber) Squadron.
No. 611 (West Lancashire) (Bomber) Squadron.

The administration of these Squadrons will be undertaken by the Territorial Army and Air Force Associations for the Counties concerned.

The Headquarters of the West Riding Squadron and the West Lancashire Squadron will be at Leeds and Liverpool respectively. The location of the Headquarters of the County of Cheshire Squadron is under consideration.

RECRUIT DEPOT.—A sub-depot of the R.A.F. Depot, Uxbridge, was formed at Orpington, Kent, on 19th August, and began the training of recruits on 2nd September. The sub-depot will continue for approximately six months and will then be disbanded.

The sub-depot is organized as a self-contained unit to train one squadron of recruits and is under the Commandant, R.A.F. Depot, for general supervision and major administration.

HENLOW DEPOT.—The Home Aircraft Depot, Henlow, was reorganized with effect from 19th August, as follows :—

Station Headquarters :

No. 1 (G.E.S.) Wing.
No. 2 (Training) Wing.
No. 3 (Training) Wing.
Officers' Engineering Course.
Parachute Storage Section.
Storage Section.

The depot will continue to be administered by the A.O.C., Inland Area, except for the following purposes :—

(*a*) No. 1 (G.E.S.) Wing will come directly under the Air Ministry (D.D.R.M.) for technical administration.

(*b*) No. 2 and No. 3 (Training) Wings and the Officers' Engineering Course will come directly under Air Ministry (D. of T.) for training.

(*c*) The Parachute Stores Section will come directly under the Air Ministry (D. of E.) for questions concerning test and issue of parachutes and their spares.

(*d*) The Storage Section will come directly under the Air Ministry (D. of E.) for questions of allotment of stored airframes and aero-engines, and for the maintenance and modification of aircraft in storage.

MOVEMENTS.—The following moves have taken place during the period under review :—

Squadron.	*From*	*To*
No. 9 (Bomber) ..	Boscombe Down ..	Andover.
No. 214 (Bomber) ..	,, ,, ..	,,
No. 18 (Bomber) ..	Upper Heyford ..	Bircham Newton.
No. 58 (Bomber) ..	Worthy Down ..	Upper Heyford.

The R.A.F. Station, Manston, will cease to be administered by the A.O.C., No. 22 Group, with effect from 1st December, on which date it will be placed directly under the A.O.C., Inland Area.

Headquarters, R.A.F., India, moved from Simla to New Delhi on 17th October.

NOMENCLATURE OF AIRCRAFT.

The official names of new aircraft are as follows :—

Submarine spotter reconnaissance amphibian, fitted with Pegasus engine. .Walrus.
Supermarine general purpose flying boat, fitted with Pegasus engine..Stranraer.
Avro coastal reconnaissance aeroplane, fitted with Cheetah engines..Anson

Hawker army co-operation aeroplane, fitted with Dagger engine .. Hector.
Gloster day and night fighter aeroplane, fitted with Mercury engine.. Gladiator.

This aeroplane can be distinguished from the Gauntlet by its single-bay biplane construction, cantilever single-strut undercarriage incorporating Dowty type internally sprung wheels, and the housing of two guns beneath the port and starboard lower planes.

PERSONNEL.

STAFF COLLEGE, QUETTA.—Squadron Leader P. F. Fullard, D.S.O., M.C., A.F.C., *p.s.a.*, has completed satisfactorily a course at the Staff College, Quetta, which terminated on 11th July, 1935.

R.A.F. COLLEGE.—The following awards were made on the passing out of the Cadets who completed their course of training at the R.A.F. College in July :—

Winner of Sword of Honour.—H. E. C. Boxer.
Winner of Air Ministry Prize for Humanistic Subjects.—A. W. J. Clark.
Winner of H.M. the King's Medal, the Air Ministry Prize for Aeronautical Engineering, Abdy Gerrard Fellowes Memorial Prize and J. A. Chance Memorial Prize.—A. J. Mason.
Winner of R. M. Groves Memorial Prize.—P.T. Philpott.

PRIZE CADETSHIPS.—The Air Council have awarded Prize Cadetships to the following successful candidates at the examination held in June, 1935, for entry into the Royal Air Force College, Cranwell :—

P. S. Butler	..	Winchester College.
W. E. M. Lowry		Highgate School.
J. M. N. Pike	..	Stowe School.
J. F. Pearce	..	Ealing Priory School.
L. D. Havor	..	Aberdeen Grammar School, Aberdeen University.
E. Tennant	..	University College School, Hampstead.

UNIVERSITY CANDIDATES.—Seventeen University candidates have been appointed to permanent commissions in the General Duties Branch of the Royal Air Force, with the rank of Pilot Officer. Of these nine came from Cambridge, four from Oxford, and one each from London, Reading, Liverpool, and Wales.

REVISED CONDITIONS FOR SHORT SERVICE OFFICERS.—Revised conditions governing short service commissions in the General Duties Branch on and after 1st July, 1935, are outlined in the following extracts from Air Ministry Order A.256 of 1935. This does not, however, affect the conditions of service of officers granted short service commissions before that date :—

Age.—Candidates on application must be not less than 17¾ years of age and have not attained their 25th birthday. For qualified pilots in the R.A.F. Reserve, the Special Reserve, and the Auxiliary Air Force, the upper age limit will be extended by one year.

Period of Appointment.—Appointments will be for a period of four years' service on the active list (including the time spent at a civil school), followed by six years on the reserve. Extensions of the active list period may be approved at the discretion of the Air Council.

Rank, etc.—Short service officers will be commissioned in the rank of acting Pilot Officer on probation from the date of joining the R.A.F. Depot, Uxbridge. Provided they have satisfactorily completed their training and are recommended as being likely to make efficient officers, they will be confirmed in their appointment and graded as Pilot Officers after 12 months' service (including the period spent at a civil school). Officers who have had previous training and are posted to service

squadrons direct or after a shortened course at a flying training school will be graded as Pilot Officers from the date on which they join for duty at a service squadron, remaining on probation until they have completed 12 months' service.

Promotion to Flying Officer.—Pilot Officers will be eligible to take Promotion Examination A. after completing 12 months' service and, subject to their having passed that examination and to their service having been satisfactory, their promotion to the rank of Flying Officer will normally take effect from the date of completion of 18–21 months' service from the date of grading as Pilot Officer, the actual date depending on the marks they obtain on passing out of the flying training school. Officers who are qualified pilots on entry and who do not pass out of a flying training school, will be eligible for promotion to the rank of Flying Officer after 18 months service from the date of grading as a Pilot Officer. Officers who obtain exceptionally high marks in the passing out examination at the flying training school may be exempted from the promotion examination for Flying Officer.

Pay and Allowances at Civil Schools.—Whilst at a civil training school, pay will be at the inclusive rate of 16s. 6d. a day. No emoluments in kind will be issued.

Gratuity.—Officers transferred to the reserve after completing their full period of service on the active list will be paid a gratuity at the rate of £100 for each completed year of actual service on full pay after the first; e.g., an officer transferred to the reserve after completing four years' service will be eligible for a gratuity of £300.

Medium Service.—Appointments to medium service from among officers granted short service commissions will, as heretofore, be for five years on the active list from the termination of the active list period of their short service engagement, followed by four years in the reserve. On transfer to the reserve on completion of their full period of medium service, they will receive gratuity additional to that in respect of the short service period at the rate of £100 for each year of medium service.

Permanent Commissions.—A strictly limited number of appointments to permanent commissions will, as heretofore, be available to short service officers.

Princess Mary's R.A.F. Nursing Service.—Revised conditions of service, pay, and other emoluments of members of Princess Mary's R.A.F. Nursing Service have been approved by the Air Council and are detailed in Air Ministry Order A.248/1935.

The Lawrence of Arabia Educational Fund.—With the consent of the relatives and trustees of the late Mr. T. E. Shaw, the Council of the R.A.F. Benevolent Fund have announced that the Anonymous Education Fund administered by them for the benefit of children of officers of the Royal Air Force owes its existence to the generosity of Mr. Shaw, who assigned the whole of the proceeds from his book, "The Revolt in the Desert," for the purpose.

The fund will, in grateful memory of the donor, henceforward be known as "The Lawrence of Arabia Educational Fund."

Dominion Officers.—The following officers have been nominated by their respective Dominion air boards to attend the R.A.F. Staff Course, 1936:—

Royal Australian Air Force.—Flight Lieutenants A. L. Walters and P. M. Rickard.

Royal Canadian Air Force.—Squadron Leader S. G. Tackaberry and Flight Lieutenant B. G. Carr-Harris.

Attachments of Foreign Officers.—Lieutenant J. Kielstrup of the Danish Air Force has been attached to the Home Aircraft Depot, Henlow, in order to undergo the second year of the Officers' Engineering Course.

Captain A. Gamboa, of the Peruvian Air Force, having completed his training at the Central Flying School, was attached to No. 25 Fighter Squadron from 16th August to 31st August and to the Air Navigation School from 2nd September, and to the School of Photography, Farnborough, from 7th October.

Captain Nepukus of the Siamese Military Air Service, has been attached to No. 16 (A.C.) Squadron.

Captain A. L. Ljungdahl, Swedish Air Attaché in London, was attached to No. 16 (A.C.) Squadron from 23rd to 28th September.

Lieutenant Afkhami, of the Iranian Air Force, has been attached to the Royal Air Force Base, Calshot, for a course with flying boats.

ARMY CO-OPERATION

Brigade and Divisional Training.—All five Army Co-operation Squadrons carried out the normal brigade and divisional training during August and September.

Inter-Divisional Exercise.—Aldershot Command held an inter-divisional exercise from 11th to 14th September in which the 1st and 2nd Divisions took part. In this exercise, two battalions of the Tank Brigade were allotted to the 2nd Division to act as infantry tanks. Nos. 4 and 13 (A.C.) Squadrons supplied the air co-operation and operated from advanced landing grounds in the vicinity of their divisional headquarters. Unfortunately, at dawn on the 13th September, when the 2nd Division launched its main attack with tanks and infantry, the weather conditions prevented aircraft from co-operating and the opportunity of observing from the air the launching of this combined tank and infantry attack was lost.

Army Manœuvres.—Nos. 2, 4, 13 and 16 Squadrons took part in the War Office exercise from the 17th to 20th September. The location of these squadrons for the exercise was as follows:—

No. 2 (A.C.)	Squadron	Old Sarum.
No. 4 (A.C.)	,, ...	Oxney Farm.
No. 13 (A.C.)	,, ...	Farnborough.
No. 16 (A.C.)	,, ...	Old Sarum.

Advanced landing grounds were used by all squadrons during the exercise. For the purpose of identification the aircraft of Eastland were painted red, and those of Westland were painted yellow. This method of identification proved very successful. A fighter squadron was allotted to each side and the casualties inflicted by them upon the Army Co-operation Squadrons restricted the air information obtained by Corps Commanders. This, together with the interruptions caused in the work of the reconnaissance squadrons, reproduced conditions more likely to obtain in war. The exercise was of great value in the training of the Army Co-operation Squadrons in all forms of their work.

In addition to the above a light bomber squadron was put inder the command of each Corps Commander.

Rota aircraft were available for the use of both sides and of the directing staff for inter-communication purposes.

Artillery Practice Camps.—A total of ninety-one "live" shoots was carried out by the five A.C. squadrons at Artillery Practice Camp.

Other Exercises of Interest.—(*a*) A bomber transport aircraft was attached to Farnborough for a period of eighteen days in July during which period 1427 Army personnel of various units of the Aldershot and Southern Commands were given practice in emplaning and deplaning with air experience. The bomber

transport aircraft co-operated in two exercises with Southern Command during which one rifle company of the Royal Welch Fusiliers was transported from Netheravon to Andover, and one rifle company of the Loyals was transported from Netheravon to Lee-on-Solent.

(*b*) Nos. 4 and 13 (A.C.) Squadrons co-operated in the Staff College, Camberley, exercise from 17th to 20th July, operating from Worthydown. Although no troops took part in this exercise it proved of great value to the squadrons, particularly in exercising the squadron I.L. Sections, which worked under more or less active service conditions.

(*c*) No. 26 (A.C.) Squadron provided the usual annual detachment to co-operate with the Regular and Territorial Units of the Scottish Command.

(*d*) Aldershot Command held a Royal Artillery Exercise from 19th to 23rd August. Nos. 4 and 13 (A.C.) Squadrons and No. 1 Balloon Section provided co-operation during the exercise. Batteries in action were represented by flashes, and in some cases, where the guns were not available, screens were used to denote gun positions. In this way pilots were given practice in the location of actual targets. Opportunity was also afforded by this exercise for practice in counter battery procedure.

(*e*) Demonstrations were given to nearly all the O.T.C. units in camp.

OVERSEAS COMMANDS

ADEN

Tour of the Aulaqi Country.—A tour of the Aulaqi country was carried out by the Acting Resident and Commander-in-Chief with five light bomber aircraft on the 7th June.

Hasani Incident.—During June, the Acting Resident received a letter from a certain Sheikh Suleiman Bin Muhammad, a minor headman of a subsection of the Hasanis, threatening to fire on aircraft passing over his country. He was in consequence summoned to Lodar to explain his conduct. Meanwhile a strip mosiac of the Hasani territory and photographs of Suleiman's village, Al Qans, and other Hasani villages, were taken in order to ensure that if air action were eventually necessary it could quickly be directed against the correct objectives. On the 6th July, however, Suleiman and the head Sheikh of his sub-section appeared at Lodar and made a satisfactory apology.

Fadhli.—The Ahl Haidera Mansur and the Ahl Fules, two subsections of the Fadhli tribe, who have always been opposed to certain terms of the agreement recently concluded in the Abyan district, including the sanctity of trade routes, attacked a Lower Yafai's caravan on the 30th June, killing and wounding six travellers. The Fadhli Sultan was ordered to collect a fine of $2,000 and take hostages from the guilty sections by 12th July. Failure to comply with this request resulted in an ultimatum being issued to the guilty sections to the effect that unless the fine and hostage were delivered in Aden by 23rd July, air action would be taken against them. The mere threat of air action was at once sufficient to induce the refractory sections to comply with the Resident's command.

Assistance from Local Inhabitants.—On two occasions during August aircraft of No. 8 (Bomber) Squadron were forced to land in Yemen territory owing to engine trouble. Valuable assistance was rendered to the crew by the authorities and inhabitants of the districts (Ghalefiga and El Jab), in which the aircraft had to land.

INDIA AND THE FAR EAST

Co-operation with Wana Brigade.—During the march of the Wana Brigade,

reinforced by the South Waziristan Scouts, between the 10th and 13th June, up the Dhana Valley, air co-operation was provided by No. 60 (Bomber) Squadron. Reconnaissance tasks were carried out by three aircraft of the flight at Miranshah, and owing to the possibility of the column meeting with some opposition a further flight of three aircraft was moved from Kohat to Miranshah as a precautionary measure.

QUETTA EARTHQUAKE.—During July two reconnaissance flights over Quetta were undertaken in an attempt to locate looters and other trespassers within the barbed wire cordon. The Assistant Superintendent of Police was conveyed on these flights.

AIRCRAFT FOR INDIA.—On 29th July, two aircraft for the Bomber Transport Flight, India, left Worthy Down for delivery to the Indian Command. The itinerary of the flight was as follows:—Worthy Down, Le Bourget, Marseilles, Naples, Malta, Tripoli, Sirte, Benghasi, Mersa Matruh, Heliopolis, Amman, Hinaidi, Shaibah, Sharjah, and Karachi where the aircraft arrived on 10th August.

VISIT OF HIS EXCELLENCY THE VICEROY TO NO. 3 (INDIAN) WING.—Their Excellencies the Viceroy and Countess of Willingdon visited No. 3 (Indian) Wing and Nos. 5 and 31 (A.C.) Squadrons at Karachi on 7th July.

HAZARA.—During August, signs of unrest were shown by some of the tribes on the Hazara border, with the result that an air demonstration had to be carried out over the area and regular troops, with R.A.F. co-operation, sent up to support the Frontier Constabulary.

On the 20th August, a raid was carried out on the village of Battal by 300 men under one Qalandar Khan, a Swati of Allai, the tribal country North of Oghi between the Hazara border and the River Indus. This man has been spreading anti-Government propaganda for some time. The raid appears to have been inspired by the Shahidganj Mosque affair in Lahore, to which has also been attributed the murder of a Sikh "granthi" a week earlier at Shamdarra near Oghi. A further contributory cause is said to be the wounding of a Muslim at Haripur by two Sikh deserters earlier in the month. The village border defence parties killed one of the raiders and captured twenty-three, of whom some were wounded; nine rifles were also captured.

As there is a good deal of communal unrest in the tribal areas West and North of Oghi, the Frontier Constabulary have established a post at Battal, and the Abbottabad Brigade have sent troops there. On 22nd August, nine aircraft demonstrated over the area. On the 26th August, a lashkar 3,000 strong was reported at Banser, 8 miles North of Battal on the river Shahid, and the latest report shows a further 400 men at Bazargai on the river Shahid, 3 miles South-West of Banser. It was during the course of these operations that a 20 lb. bomb exploded whilst being unloaded from an aircraft at Abbottabad, resulting in the death of two and injury to six airmen. Two aircraft were rendered unserviceable.

MIDDLE EAST

SEARCH FOR ITALIAN AIRCRAFT.—On the 8th August five general purpose aeroplanes of No. 45 (Bomber) Squadron took part in a search for a missing Italian Savoia Marchetti aircraft and located the burnt-out wreckage near Almaza.

IRAQ AND PERSIAN GULF

PERSIAN GULF.—During June two flying boats of No. 203 (Flying Boat) Squadron from Basrah visited Bahrein, Ras-al-Khaimah, Muscat, Dibai and Yas Island,

conveying an air staff officer on a tour of inspection and returning from Muscat with the Political Agent, Muscat, as a passenger.

WATER SUPPLIES BY AIR.—During the month of August, one aircraft of No. 84 (Bomber) Squadron successfully dropped water supplies to a party of distressed police ten miles South-East of Lobela.

FLIGHT TO ENGLAND.—On 24th July four flying boats of No. 203 (Flying Boat) Squadron left Basrah *en route* for England where they were to be exchanged for a new type. The itinerary of the flight was as follows :—Basrah, Lake Habbaniyah, Alexandretta, Kastelorizo, Athens, Brindisi, Naples, Berre, Hourtin and Pembroke Dock, where they arrived on 3rd August.

FOREIGN

BELGIUM

UNIFIED AIR DEFENCE.—M. Deveze, the Minister for National Defence, with the sanction of the King, has created a single command of the forces and services which constitute the National air defence in peace-time and in the event of war.

This single command will be exercised by Lieut.-General Gillieaux. Hence the three categories of defence which at present serve in the protection of Belgium, viz., the Look-out service, the Active Defence service provided by Air units, Balloon units and A.A. Artillery, and the Passive Defence service designed to protect the civil population, towns and establishments, will henceforward be centralised.

General-major Duvivier, at present Chief of the Cabinet of the Minister for National Defence, is appointed as from October 1st, 1935, assistant to General Gillieaux, and is to succeed the latter in that command at the beginning of March, 1936, when General Gillieaux retires on age limit.

CZECHOSLOVAKIA

AIR POLICE FORCE.—Czechoslovakia has established an Air Police Force which is to be located near her frontier with Germany. Amongst its duties are included " the protection of Czechoslovak sovereignty in the air " and " the enforcement of international agreement in flying."

FRANCE

M. PIERRE COT'S VIEWS.—M. Pierre Cot, the former Air Minister, states that the country should know the true position as regards the Air Force.

In July, 1933, the Supreme Air Council sanctioned the re-organization plan drawn up by the master hand of General Denain, then Chief of Staff. The outlines of the programme for new material were at the same time drawn up by the General Staff and the tactical experts. In December, 1933, the Cabinet adopted the plan for renewal of the Air Force. The object of this plan was to replace the excessive number of machines unsuitable for aerial combat by an up-to-date fleet numerically smaller, but composed of more powerful and more efficient machines adapted to the various missions entrusted to the Air Force. The execution of this programme was to be spread over three years. The necessary money (approximately £40,000,000) was to be drawn from three sources :—

(i) The ordinary air credits.
(ii) The sum saved by general re-organization of national defence and by a better employment of the credits allocated to the Minister for Air, the Ministry for War, and the Ministry of Marine respectively.
(iii) If necessary a special loan, the conditions being fixed by the Government.

General Denain was one of the principal authors of the plan of December, 1933, and it was thanks to his efforts that it was framed so quickly. General Denain was, however, a member of the Doumergue Cabinet, and the foreign policy of this Cabinet entailed modification of France's air policy. The fear of Germany's re-armament increased after the famous French Note dated 17th April, 1934. Matters were speeded up. It was decided to carry out in eighteen months' work which really required three years. It was no longer a question of a general re-organization of the French national defence and better distribution of credits. It was decided to cover all requirements by loan. The heavy burden placed since 1934 by the exceptional military credits on public credits and French economy is well known. Germany's re-armament is an alarming reality and a serious affair. Germany is re-arming methodically. She is not rushing at it blindly, but taking the necessary time—no more, no less, for the creation of the strong Air Force she needs. Now French calculations were made as though Germany could dispense with the factor of time. Estimates have been based on certain speeches (or bluff) of Goering rather than on the methodical mind of the German Staff. The Doumergue Government acted as if the re-armament of Germany would be accomplished in 1936. It is, therefore, in 1936 that the French Air Force will be most powerful. If the assumption is correct it is well; if not, it is dangerous. In matters concerning the air, to be ready too soon is not to be ready at all, because an air fleet quickly becomes out of date and obsolete. If the re-armament of Germany, as appears to-day to our experts, requires another two or three years, France runs the risk at the time when the external danger will be at its peak, of having an out-of-date air fleet which will not ensure the maximum security. It will not be possible to demand a further three or four million francs of the country. France will already have enough difficulty in renewing the material of an up-to-date Air Force.

As regards the active side, there is the very efficient force which France will have next year. This force will be the most powerful and up-to-date in the world. Numerically this has already been achieved, and it now remains to ensure quality, which is even more important. Technical services are taken up with series construction of new material. They no longer have any time for the invention or creation of machines to be constructed in three or four years' time. Research and design is replaced by inspection work and series construction. A similar remark may be applied to the General Staff, whose activities and time are devoted to administrative requirements which too rapid realization has increased. The French aeronautical industry is working at full pitch with triple shifts of hands and night work, all of which is very expensive—the more so since raw materials are worked under the same ruinous conditions. In a few months it will no longer be possible to place any further orders because all the credits will have been absorbed. What will happen to the factories, engineers, and hands? France is heading towards a serious crisis in the aeronautical industry.

Normal periods for adaptation of new materials to the personnel have been exceeded. The personnel complains of being supplied with materials inadequately tried out. It is difficult to pass without transition from a fighter with a speed of 160 m.p.h. to one of 240 m.p.h. It is not possible by a wave of the wand to convert crews who carried out reconnaissance work in the former two-seaters, into crews capable of carrying out the difficult long distance reconnaissance missions which will be entrusted to the multi-seaters.

The error lay in the belief that Germany's re-armament would be so rapid and that the German peril would be at its peak in 1936, instead of 1937 or 1938. The price of this error was high. The French Air Force is the most powerful in

Europe ; in a year it will be the most powerful in the world. In two years, however, France will be in a serious position owing to Germany's re-armament. France's foreign and military policies must be brought into line with carefully thought-out realities.

NEW AIRCRAFT.—According to Press reports, the *Société Aéronautique du Sud-Ouest* have finished the construction of the first of ten " Bloch 210 " twin-float heavy bombers which were ordered by the Naval Air Service last March. It is also stated that by the beginning of December, this factory expects to bring out the first of the twenty-five " Bloch 210 " landplanes, fitted with retractable under-carriage and slotted wings. The 210 is derived from the " Bloch 200," is fitted with two Gnome K.14 900/1,000 h.p. engines, and has a speed, it is claimed, of 203 m.p.h. at 11,500 feet.

Intensive work is being carried out at the Farman works, Billancourt, in order to turn out the four-engined Farman 220 heavy bomber as soon as possible. The initial order for sixteen machines has now been increased to twenty-four.

SEAPLANE for SUBMARINE.—It is understood that the *Les Mureaux* works have brought out a seaplane " Mureaux M.B.411 " suitable for carrying in a submarine.

Fitted with a Salmson engine of 175 h.p. without compressor, the seaplane attains a speed of 112 m.p.h. at 5,000 ft., and climbs to 6,562 ft. in eight minutes ; it has a range of 375 miles. The machine has folded wings, and can be stowed away in four minutes in the submarine " Surcouf." The latter is due to start on a world cruise in October.

APPOINTMENT OF MAJOR FONCK.—Major René Fonck, one of the best known French aviators of the Great War, has been appointed liaison officer between the General Inspectorate of Aviation for defence of the Metropolitan area and the fighting squadrons on the one hand, and the official test centres at Villacoublay and Rheims on the other. One of his main duties will be to study the practical application of new equipment. According to *L'air* : " Fonck's war experience will be of great service in his new appointment. The fact that he had seventy-five enemy aeroplanes recorded to his credit, without himself once being hit, was not a question of pure luck, but his method and manœuvre."

ITALY

WORLD'S RECORD LONG DISTANCE FLIGHT.—Italy has regained the world's long distance record for seaplanes, previously held by France. The aircraft used was a Cant Z. 501 similar to the one used when Italy first gained this record in October, 1934. The aircraft, piloted by Signor Stoppani, flew non-stop from Trieste to Berbera—3,088 miles, in 25 hours, exceeding the French previous record by 332 miles.

ANTI-GAS MASKS FOR CIVILIANS.—All " state-employed " personnel earmarked for employment on vital work during war-time must be in possession of anti-gas masks within three years of the date of a decree recently published in Rome. The works considered of vital importance under the terms of this decree include electric power stations, depots containing inflammables and explosives and public assistance services.

AIR EXERCISES.—During July an air exercise to test the value of the newly equipped S.S.F. squadrons was carried out. The exercise took the form of a daylight bombing raid on Milan. According to Press reports, the attacking aircraft approached from the direction of the Alto Adige frontier and Brenner district by differing routes,

forming up in mass formation for the attack on nearing Milan. In spite of a vigorous defence by the defending aircraft many of the " enemy " bombers succeeded in reaching their objective and carrying out their bombing, " some of them undetected and undisturbed." Most of the flying took place at approximately 15,000 ft. Altogether about 180 aircraft took part. There is no mention of A.A. guns, and it is not known if ground defences took part. Seemingly the main object of the manœuvre was to try out those bomber and fighting squadrons which have received their new equipment. W/T communications between aircraft in the air and with the ground bases was maintained throughout by the defending forces.

NEW STANDARD MEDIUM BOMBER.—A few details are now available of the new medium bomber now in production. The aircraft, designed by Savoia, is the " S.81 " and is, in fact, the military version of the civil " S.73 " (in use on several air lines). It is a 3-engined low-wing monoplane of 2,100 aggregate h.p., with fixed undercarriage and split-flap air brakes. Its armament includes three machine-gun turrets. Its speed is reported to be 205 m.p.h. and its range 621 miles with 4,400 lb. of useful load. Production orders have been given and delivery has started.

INCREASED ESTABLISHMENT of PERSONNEL.—According to a Decree recently published in Rome, the authorised establishment of the personnel of the *Regia Aeronautica* has been substantially increased with effect from 1st July last. The total number of officers has been increased by 500 to 3,061, and that of other ranks by 12,948, to 37,422. By the same decree, authority is granted for the retention in service during the financial year ending 30th June, 1936, of 1,500 short service Officers and 1,500 short service N.C.O.'s, all of whom would be additional to the establishment.

JAPAN

PROPOSED AIR MINISTRY REJECTED.—It is understood that recently the Ministry of Communications submitted a plan for the formation of an Air Ministry, to unify under a single administrative authority naval, military, and civil aviation.

Both the Minister of Marine and the Minister of War are stated to have expressed opposition to the scheme, giving as their opinion that the system had not been satisfactory in Europe. The Finance Minister is understood to have favoured the scheme. As both the Minister of Marine and Minister of War are opposed to the plan, there is little, if any, chance of a separate Air Ministry being established in Japan for some considerable time to come, if ever.

ACCIDENTS.—According to reports in the Press, the following numbers of accidents with the results shown have occurred during the three months ending 30th June, 1935 :—

	Accidents.	*Escapes by Parachute.*	*Injured.*	*Killed.*
Naval Air Service ..	26	3	24	5
Army Air Service ..	15	4	5	11
Civil Aviation	7	0	5	10

SOVIET UNION

HEIGHT RECORD.—The *Moscow Daily News* of 11th September reported that a new Soviet altitude record of 39,440 ft. had been established on the 7th September, 1935. From Press reports, it is obvious that the aircraft used was the " I.16," which is the latest single-seater fighter to be brought into service in the U.S.S.R. Air Force. This is a low wing monoplane fitted with a Wright " Cyclone " engine, and has a retractable undercarriage. The maximum speed is in the neighbourhood of 250 miles per hour.

The fact that a standard monoplane single seater fighter reached this considerable height indicates a good general performance at lower altitudes.

NEW LARGE AERODROME NEAR MOSCOW.—It was announced in the Soviet Press on 4th September that members of the Council of Peoples Commissart (Cabinet) had visited Moscow Central Airport, and had seen there plans of a new civil aerodrome near Moscow. This aerodrome will, it is claimed, be the largest, best built, and best equipped in the world. Its area will be 1¼ miles by 1¼ miles, and it will be located near Khimki, a village on the banks of the new Moscow-Volga Canal, about eleven miles North-West of the centre of Moscow.

UNITED STATES

CHIEF OF ARMY AIR CORPS RETIRES.—The long and bitter controversy which followed the succession of fatal accidents to U.S.A. Army Air Corps pilots when they took over the air mail services temporarily last year, ended recently with the retirement from active duty, at his own request, of Major-General Benjamin Foulois.

NEW AIRCRAFT.—A twin-engined all metal low-wing monoplane attack aircraft which will be fitted with two fourteen-cylinder Wright Whirlwind engines of 750 h.p. each, is stated to be far advanced in the shops of the Curtiss Aeroplane and Motor Corporation. No other information is as yet available on this aircraft. but it is expected to be the fastest military aircraft of its class.

It is interesting to note that, hitherto, all attack aircraft in the Army Air Corps have been of the single engine type.

Three aircraft firms—Douglas, Martin and Boeing, have produced bombers for a type contest for the Air Corps replacement bomber. This contest opened at the end of August, and the Boeing Aircraft Factory at Seattle has completed a four-engined bomber of which the following particulars are available :—

All metal mid-wing monoplane equipped with four Pratt and Whitney " Hornet " engines of 700 h.p. each, and with the new Hamilton Standard three-bladed constant speed propellers. Span approximately 100 feet, length of 70 feet, height of 15 feet, and gross weight of about 15 tons. Clean streamlining is a feature, with retractable landing gear and tail wheel as further aids to speed.

A number of new armament installations developed by the Boeing engineers are carried in addition to the latest types of flight and engine instruments, including automatic pilot, two-way radio telephone equipment and a radio " homing " device. Air brakes are used for the first time in any American aircraft, and these as well as the wheels and tyres have been specially developed.

Construction is of typical Boeing semi-monocoque type, the structure consisting of longerons, skin stiffeners, bulkheads, and smooth outside metal skin. It is also stated that the aircraft has been stressed to take 1,000 h.p. engines, if they become available within the next two or three years.

It is known that the Air Corps specifications called for a high speed of from 200 to 250 m.p.h. at 10,000 feet altitude, for an operating speed of 170 to 200 m.p.h. at the same altitude, for an endurance at operating speed of from six to ten hours, and for a service ceiling of from 20,000 feet to 25,000 feet. In a recent flight of nine hours' duration an average speed of 233 m.p.h. was achieved.

REVIEWS OF BOOKS

GENERAL

Great Britain and the German Navy. By E. L. Woodward. (The Clarendon Press). 21s.

This is a weighty and painstaking compilation of the pertinent facts, incidents, documents, and speeches relating to Anglo-German relations, and more particularly naval policies from the initiation of the German Navy Laws of 1898 and 1900 up to the eve of the outbreak of the Great War.

Landmarks on this journey through those pregnant years were the Moroccan crisis of 1905–6; the advent of the "Dreadnought" era; the Second Hague Conference of 1907; the Bosnian crisis; the Agadir crisis; and the futile efforts from 1909 onwards, ending with the attempts of Haldane and Churchill in 1912, to arrive at an "understanding" with Germany to check the shipbuilding race. Running through this narrative of international affairs we find the recurring canker of party politics at home, and the menace of opportunist Ministers who would have taken advantage of the *laissez faire* tendencies of their countrymen in peace time, to sell our imperial birthright for the savoury mess of "social improvement" pottage. Yet the common sense of the nation as a whole, led by such forceful characters as Fisher, McKenna, Churchill, and Haldane, enabled us to keep our naval predominance, and saved Britain, the Empire, and her allies from being overwhelmed when the greatest crisis of all came.

The author deals judicially, but unprofessionally, with the old and oft-exploded criticism of the "Dreadnought" policy—a favourite hobby of the anti-Fisherites. No one has ever elicited from these destructive critics what their own policy would have been. Would they have stopped building capital ships altogether while other nations continued to build bigger and better ones; or would they have gone on building abortions like the "King Edward VII" class, even after plans for an "all big gun" type had already been prepared in Italy, Austria, and the United States, while Japan had actually laid down a ship of greater displacement than the "Dreadnought" herself? Opponents of the "Dreadnought" design always appeared to display profound indifference to foreign progress, and ignorance of the first principles of modern gunnery and tactics, except where their views were obviously coloured by personal bias.

This book is a valuable contribution to the history of our relations with the other great Powers, especially Germany, in the years which preceded the War, and should be read by all those who take an interest in the higher conduct of international affairs and imperial defence. The reader cannot fail to be struck by the recurring failure of attempts to bring about disarmament and, in the light of past experience, how utterly foolish has been our recent policy of giving a lead in that direction. Very prophetic was Sir Edward Grey's remark in February, 1914, "... it does not follow that if the leading horse slackened off, and that slackening was due to exhaustion, the effect would be a slackening on the part of others. It might be a stimulating one." So it has proved with our "neglect the Navy" gesture of late years.

By contrast, the good sense and wise statemanship of the recent Anglo-German naval agreement will be another impression left on the mind after studying this work.

There are several useful Appendices, including a chronology of the principal events connected with the subject from 1896–1914. The index is a little meagre.

The Crimea in Perspective. By Lieut.-General Sir George MacMunn, K.C.B., K.C.S.I., D.S.O. (G. Bell & Sons). 15s.

General MacMunn has done well to follow up his work on the Indian Mutiny with a volume dealing with the war against Russia in 1854–55, for a succinct account of both events have long been needed. Moreover, the instance of the Crimea has special application to-day in that it emphasizes the necessity of continuous development in the life of an Army as against the tendency to lean unduly on tradition; and such tendency is, of course, accentuated on the morrow of a victorious struggle. Certainly it was hard to recognize the magnificent fighting machine of Wellington in its successor of forty years later, although the troops themselves were as steadfast as ever and the officers just as devoted. None other than these last assets could compensate—and they did compensate at fearful cost—for the grave defects of organization and almost total lack of higher training of the commanders and staffs.

While the author justly indicts the gross Governmental neglect of the Army during the first half of the XIXth century, he is far from concurring in the more generally accepted view that the conception of the campaign was erroneous and that its execution was a series of blunders and, with respect to the latter conclusion at least, he makes out a good case. For Lord Raglan he has nothing but praise and, when it is recalled that the British Commander-in-Chief had spent the previous thirty-nine years in an office chair, it must be admitted that he acquitted himself in a manner which few men could have surpassed. He was brave, he was chivalrous, he was no mean tactician or strategist, and he gained and retained the confidence and affection of the troops whose hardships he shared—and among whom he died. Moreover, his tact and personality proved invaluable in difficult relations with his Allies.

It was not, of course, the intention to spend the winter in the Crimea, but when such policy was decided upon—it might be more accurate to say, drifted into—it was a cruel stroke of fortune that no less than twenty-one supply ships were wrecked while awaiting entry to the little harbour of Balaclava; and to this disaster the sad story of the winter is due. True, the four thousand miles journey from England by sea made the problem of replacements a comparatively easy matter as far as Balaclava; but, with soaked and broken ground, the four miles from Balaclava made all the difference. A hopeless lack of land transport made it impossible to maintain the Army. As an officer of high administrative experience General MacMunn inevitably fastens on this fatal immobility:

"The Army starved because there was no transport. There was no transport because the Government would not organize it, but such transport as there was could not work in the rain, because there was no road, and it could not live because there was no fodder, and there was no fodder because the storm had wrecked the fodder ships, and there was no reserve of fodder because the Government at home would not send it. And so the British Army died in its tracks . . ."

The book is well proportioned and the sequence of events, including some account of operations in the Baltic and at Kars, lucidly presented. Nevertheless it is not a wholly satisfactory volume because it gives the impression of being put

together too hastily. For instance, there are certain repetitions such as the setting out of the losses of the Light Brigade after their famous charge on two successive pages, while the index—an essential feature of a work of this kind—seems to have been very sketchily compiled. The illustrations are lavish but the maps leave something to be desired.

Samuel Pepys—The Year of Peril. By Arthur Bryant. (Cambridge University Press). 12s. 6d.

Mr. Bryant, in what is now to be the second, but not concluding, volume of his "Life of Pepys," carries the story from 1669 to 1683—years which contain Pepys's first Secretaryship, during which he laboured unceasingly for the better organization and discipline of the Royal Navy, followed by his fall from office and his persecution by the republican opposition, which placed him in grave danger of his life. It is impossible to do other than admire Mr. Bryant's industry; his researches must have been exhaustive and painstaking, and he has earned the gratitude, not only of the general reader for a lively account of some of the less well-known years of Pepys's life, but of the scholar for a work that adds much to our knowledge of the *minutiæ* of his day-to-day existence. At the same time, those conversant with the subject will inevitably feel some sense of anti-climax, if they relate the book to the various press announcements that preceded its publication; for the "discoveries" do not, after all, amount to so very much. There can be little material that Mr. Bryant has used that was not known to the late Dr. Tanner, though the subject is admittedly treated at far greater length than the latter had attempted. That Mr. Bryant's "discoveries" are not always so new as he thinks, is shown by the Appendix wherein he prints "The Present Ill State of My Health" as "an unpublished manuscript of Samuel Pepys"; but it was printed, with a few omissions, in the *United Service Magazine* for July, 1913.

The style is lively and readable, though occasionally slightly facetious. It might be noted—for it is a constantly repeated error—that the great Dutch Admiral's surname was not Van Tromp, but Tromp. "Lea shore," on page 73, may doubtless be attributed to careless proof reading.

The Campaign of Adowa and the Rise of Menelik. By G. F-H. Berkeley. (Constable & Co.). 15s.

All students of politico-military history would do well to read this timely and valuable reprint of a work first published in 1902. The author's sources have a wide, though necessary one-sided, range—Italian Green-books; official reports and journals of prisoners, as well as the luckless Baratieri's own *Memorie d'Africa*, Sambon's *L'Esercito Abissino*; and the very frank, but anonymous *I Nostri Errori In Africa*.

No British or American pressmen accompanied Italy's forces in her first invasion of a land which she has so plainly coveted ever since we ourselves "guaranteed" her precarious trading hold upon the Bay of Assah in 1882.

The dominant impression which this book leaves on one's mind is the extraordinary skill and valour of the Abyssinians in a defensive war, and the instinctive use which they have always made of the central rock-citadel and desert "moats" of their unique domain which—thus far, at least—they have for ages held against all comers.

The Khedive Ismail was mistaken in these warrior people. His first assault was so utterly smashed by Ras Alula's spear and sword-men that only a handful

of Egyptians reached Massowah alive. Ismail's " revenge " had a still more ignominious ending: this time a well-found army of 25,000 men were outwitted and out-fought by King John's levies. Prince Hassan, the Khedive's son, was set free after payment of a heavy ransom—but not until the Negus had tattooed his Moslem arm with a Cross as " the mark of a Christian King ! "

It was the same with Osman Digna's dervishes; the same again and again with the Italian trespassers: at Dogali, at Makalle, and at Amba Alagi. These were all humiliating defeats. Then tortuous diplomacy and intrigue—a sorry and clumsy tale—were essayed in Rome; in the Colony beyond the frontier, and likewise in Tigré to pave the way for a *Rivincita* which should wipe out a sombre past and ensure the final conquest.

This was the so-called " Crispi policy " of an Italy that was, even then, financially very poor, as well as wholly lacking in experience of colonial wars and the organizing and administrative capacity needed to carry such ventures through and consolidate them permanently.

Warnings like Nerazzini's went unheeded; and they sound strangely familiar to-day, although forty years old: " Nothing is more easy than to occupy Tigré, " that shrewd naval doctor reported, " but it means the certainty of war against a *united* Ethiopia—and a war with all Ethopia is a *big* war ! "

Menelik of Shoa was soon to demonstrate this. Bribes of money and arms did *not* secure his neutrality in Italy's grand design. Defections among the petty " kings "; goadings from the Cabinet at home; chaos and congestion in the port of Massowah; scarcity of water; contempt for the " barbaric " foe and his numbers and prowess in battle—all these factors led straight to the crowning *débacle* of March 1st, 1897. It was a day of calamitous muddle and misunderstandings. How Italy's army was all but annihilated must be read in this book. Baratieri himself was one of the first of the fugitives to reach safety at Adi Caje, and from there he wired news of the disaster to Rome. Panic had seized the survivors. "All control was lost," their C.-in-C. mourned. " The soldiers, as if mad, threw away their rifles and ammunition with the idea that if they were taken unarmed they would not be emasculated. In vain I and General Ellena, etc. . . ."

Oreste Baratieri, Rome's idol of six months before, was arraigned by the Chamber on " criminal charges." Convicted on six counts, only mitigating pleas secured his acquittal, but even so, with the crushing verdict that as leader he was " entirely unfitted to cope with so unequal a struggle."

Meanwhile the Negus, a warrior-statesman of consummate grasp, held his hand for reasons of his own, styling himself: " A man of peace who has been compelled to fight." To-day's Emperor, his grand-nephew, uses exactly the same words.

This is a book to have by one in view of the great events which may now be pending.

England, Italy and Abyssinia. By Major-General H. Rowan Robinson. (William Clowes & Sons). 5s.

General Rowan Robinson has written a book that cannot fail to be of use to anyone seeking to clarify his ideas on the very vexed question with which he deals. He traces the course of Napier's successful campaign of 1867–68: which Sir John Fortescue described as " Upon the whole the most difficult and dangerous enterprise in which a British army was ever involved." He gives us an account of the origins of Italian colonial enterprise in this part of the world, and the fighting that led up to the unfortunate battle of Adowa in 1894. His appreciation of the military

situation, written at the end of August, is based on admittedly scanty information, but there is little more to be had to-day and it remains of interest.

He traces the origins of the dispute that has now led to the outbreak of hostilities to its true sources in Italy's economic position and her desire for expansion, which leads him to the perennial problem of " Have's " and " Have-nots," and some interesting conclusions about the wider implications of the whole business. There are four illustrations which give a good idea of the nature of the country ; also maps, sketches, and appendices giving relevant articles of the League's Covenant and the Suez Canal Convention.

Dwight Morrow. By Harold Nicholson. (Constable). 15s.

Men of outstanding capacity and character are not common in American public life, and when one such does appear, posthumous praise of him is boundless. How else are we to account for so able a biographer as this setting up the late U.S. Ambassador to Mexico as " a model for the completely civilized man ? " Dwight Morrow beamed upon us in London during the troublous Naval Conference of 1930. His principal role there, as also in the lurid and hectic political circles of Mexico city, was that of a " trouble-shooter," or reconciler of conflicting aims and interests.

Mr. Nicolson tells us how this diminutive Wall Street lawyer-financier (and partner in Morgan's international banking-house) fairly exuded " insatiable friendliness " and exuberant goodwill. He was just a simple, tenacious soul ; the friend and classmate of Calvin Coolidge at Amherst College, and the zealous booster of that queer little man for a President after Woodrow Wilson went down to ruin. But Morrow knew nothing of the Republican bosses' plans. These landed Warren Harding in the White House, where he and his wife were soon running a secret cocktail bar for their friends whilst America's prohibition mania flamed its fiercest course.

As a lover of " tremendous tasks," Dwight Morrow played a sane part in the buying of stores and munitions for our Government during the uproarious chaos of 1917. To-day, Lord Reading must be the only surviving witness of an economic babel without a parallel in modern annals. Twelve years with Morgan's found Morrow " well fixed " with millions, and bitten with political ambition as well. So when Harding died in office in a cloud of obloquy and " Silent Cal." became President without election, Morrow had reason to look for some high office from his friend. But the taint of Wall Street forbade that, and Coolidge sent him down to Mexico, to " iron out " relations between the two Republics. This was a tough job in a gusty, chaotic land, largely illiterate still, mainly of Indian stock, and with an abiding mistrust of the United States who by war and " wangling " had contrived to annex some 500,000 square miles of Mexican territory.

The seventh Constitution (of 1917), enacted in seething conflict—political, economic, social, and religious—sowed fierce grievances which Dwight Morrow was to allay. His brief term in Mexico City showed what courtesy and tact could do to " paper the cracks," if not wholly to heal the ancient feuds of Mexican-American relations.

A man of large fortune, well-informed, forthright, and shrewd, Dwight Morrow had many claims to be considered " Presidential timber." If he had lived, he might have cut a figure in the 1936 campaign. As it was, he never got beyond the Federal Senate—which even a Huey Long could reach with due *éclat*.

That Harold Nicolson's book is well written need not be stressed. But what interest it can have for non-American readers is by no means so easily apprehended.

NAVAL

Blast and Counterblast. By Vice-Admiral C. V. Usborne, C.B., C.M.G. (John Murray). 10s. 6d.

These thumb-nail sketches of Admiral Usborne's experiences and recollections of the War, interspersed with shrewd but kindly comments, are most readable. Moreover, like his "Smoke on the Horizon,"[1] they give many examples of that enterprise and initiative which were shown in such marked degree by officers of both Services in many "side-shows."

The author shares with Commander Sir Denniston Burney the credit for inventing and perfecting the device which went far to defeat the mine peril. As he justly remarks, what a difference it might have made to the Dardanelles campaign, if only someone at the Admiralty had had the brain-wave to put the Mediterranean Command in touch with his successful experiments at Scapa Flow. By the time he found himself in those very waters, effort was mainly concentrated on bottling the "Goeben" and "Breslau" by laying mines ourselves, and the days when our ships, if they had been fitted with paravanes, might have forced their way through the Straits, were over.

Admiral Usborne gives us vivid and human accounts of the "comic opera" part played by a Greece with two governments—the one pro-Ally, the other struggling to preserve a pro-German neutrality; of the great fire of Salonika; of Corfu—a veritable Geneva of to-day in miniature in its international jealousies and mistrust; of the journey of his naval brigade in ninety-two motor vehicles to Belgrade; of the miseries of the Balkan States; and, modestly, of his final achievement in forcing the obstructing Hungarians to surrender their Danube flotilla after the Armistice.

His was an adventurous war, and many of us will realize the "feeling of emptiness" which he experienced when the end came. "Of course I was glad . . . at the triumph of our arms. But it was a sad gladness, . . . the great days were gone, . . . the door of opportunity was now for ever closed." But the writer could not have foreseen the full measure of depression which was to descend on those who had brought about that triumph. No one then could visualize the madness which was to possess our politicians and a great part of our people whereby the arms which had stood between us and utter degradation were to be scrapped and scrapped, and that, while other nations armed and re-armed, our leaders would rely more and more on the chimera of "collective security."

The present generation is inclined to be shy of War books; but if they are written with the facile pen of this work, they cannot fail to enlist interest, and in reading, even the youngest on whom the great conflict had no effect, may learn something of how his inheritance was preserved for him and what he must be ready to do in order to hold it.

Britain's Fighting Fleets. By A. Guy Vercoe. (Percival Marshall & Co.). 2s. 6d.

This is a useful little volume giving the main details of all the different types of warships in the Navy from 1890 to the present day.

It is unfortunate that the author has been led into quoting the theories of discredited critics of the "Dreadnought" policy,[2] and it would have been only

[1] See "Naval Traditions and Modern History" by "Observer" in the JOURNAL for May, 1933, p. 369.

[2] See review of "Great Britain and the German Navy," p. 896 of this JOURNAL.

courteous of him if he had mentioned that Mr. Ough's models—several photographs of which add to the value of the illustrations, are those which belong to the collection in the R.U.S. Museum.

The name of the 12-in. monitor H.M.S. " General Craufurd " is spelt " Crawfurd " in the text and " Crawford " in the index, but perhaps these are both printer's errors.

MILITARY

Haig. Volume I. By Duff Cooper. (Faber and Faber). 25s.

From the time he went to Oxford, Douglas Haig kept a diary. There are intervals of silence, but only two long gaps—1893–4, when he was with his regiment in India or on leave, and 1896–7, when he was at the Staff College. He wrote regularly during the Great War, " the average entry for each day amounts to two or three typewritten pages " ; to these are annexed, as in an official war diary, very important appendices : letters received, copies of those dispatched, records of meetings and conferences, telegrams, orders, and maps.

His trustees, instead of selecting one of his intimate friends or staff officers to write a life—perhaps because one of them, Brigadier-General John Charteris, had already published an excellent book about him ; perhaps to ensure impartiality—chose Mr. Duff Cooper, a Captain and D.S.O. of the War, who did not know him personally and was of a younger generation, placing all the papers at his disposal ; and with one exception, he has done his work well.

Summarizing the first fifty-three years of Haig's life in 125 pages, for the rest Mr. Duff Cooper lets the Field-Marshal speak for himself, giving large extracts from the diaries. Thus we have the man as he was day by day in stress and trial, not as either his admirers or detractors have depicted him, and we can form our own judgment. The first volume goes as far as the close of the battle of the Somme.

It may be said at once that the publication will consolidate the high place which Field-Marshal Lord Haig holds in the hearts of his fellow countrymen. Favoured by fortune as regards money and influential friends, Haig as a young man was nevertheless methodical and hardworking, taking every opportunity to learn his profession by study and visits to foreign Armies. Yet there must have been something more in him ; for his great teacher at the Staff College, Colonel G. F. R. Henderson, told his student contemporaries that some day he would be Commander-in-Chief. That this is no myth is proved by a letter preserved by one of them, written by Haig in reply to congratulations on becoming G.O.C.-in-Chief, Aldershot, and the reminder that the complete fulfilment of the prophecy was still to come. In this letter, he said, " Old Henderson must have been talking very much through his hat when he said that he thought I would ever be C.-in-C. of the British Army. I only want to be of use somewhere."

The Sudan and South Africa taught him practical soldiering ; in the latter campaign he sustained Sir John French on the right hand, whilst Major (General Sir Herbert) Lawrence, later his own Chief of the General Staff, did so on the left.

The period of the Great War covered by the volume has already been described in the Official History of the War. The diaries confirm the accuracy of the history and reveal nothing more about the operations ; what is new in them is, first, something of Haig's personal relations with and opinions of the other great personalities, and, secondly, the soundness of his views and proposals, unfortunately not adopted, on strategy or tactics ; his anxiety to seek for surprise and to make use of all the aids that science and inventors could provide ; and his open mind as

regards politicians. He experienced the same difficulties with the latter as Sir William Robertson; but the entries in his diary prove beyond question that whenever he came face to face with them, he took a man on his merits and allowed no previous prejudice to influence his view. For Mr. Asquith (Lord Oxford) he had respect from the first, which was only increased by further knowledge. The diary records that Lord Kitchener told him that "he had found Asquith can be trusted, but he does not trust the others." From the first, Mr. Lloyd George struck Haig as "astute and cunning . . . but I should think shifty and unreliable," and this opinion remained until the end, and was not removed by the flattering letters (printed in the book) received from the statesman. After the arrival of one of these in September, 1916, Haig wrote to his wife, "I have no great opinion of L.G. as a man or a leader." His distrust was increased a few days later when Foch came personally to inform him that Mr. Lloyd George had attempted to get from him his opinion of the ability of the British Generals.

From first to last, in 1914–15, too, he had no faith in Sir John French; on the 11th August, 1914, he wrote: "I know French is quite unfit for the great command at a time of crisis in our nation's history." His opinion of the Commander-in-Chief, expressed to Lord Kitchener and others after the battle of Loos, evidently had influence in bringing about the removal of French.

In his book "Cavalry Studies," Haig had written in 1904, "The whole question of co-operation with an ally is fraught with difficulties and danger," and he came to France determined to get on well with the French. But it is clear from the diaries that he seldom saw eye to eye with either Joffre or Foch, who only too frequently in their plans took no account of either the ground or the enemy. In particular, he protested against fighting at Loos, where ground and observation were in the enemy's favour; against subsidiary attacks executed long before the main one; and against the frequent postponements of the date of French co-operation. He was opposed to the selection of the Somme as a battlefield, preferring an operation further North which would turn the German flank, and he objected to the continuation of the battle by mere frontal attacks where success could have no strategic effect.

The religious side of Haig's mind is made apparent. He attended Divine Service regularly, noting down the points of the sermon and, though naturally reticent, he did not hesitate, on occasion, to write and speak of Divine assistance not only to his wife but to his subordinates. "I reminded Gough," he records, "that we shall win, not by might, not by power, but' by my spirit, saith the Lord of Hosts.'"

That Haig was not without human weakness is shown by the symptoms of the usual egotism of a great commander in weighing the performances of his own troops against those of others. The editor would have been wise to have omitted the slighting remarks on the Commander of the II Corps and, later, the Second Army, and his subordinates, which are entirely unjustified.

There are some excellent portraits of Haig at various stages of his great career in the Service.

The Campaign of the Marne, 1914. By Sewell Tyng. (Oxford University Press). 21s.

This pretentious book by an American author, on the first phase of the War, has a very lengthy list of works, French, English and German "cited in the text," and its foundations are said to have been "laid upon the official histories of the four nations concerned." There is little sign of such basis in the text; in fact,

the British and German official histories appear to have been ignored, and but little attention paid to the French one. Mr. Tyng has preferred to follow the partisan publications of the French school which gives all the credit for the German retirement to Maréchaux Joffre, Foch, and Franchet d'Espérey. Naturally, Joffre's messages to the last-named, urging him to get on and keep up with the British, find no place. There is plenty of material, fact, fiction and legend, in the book, but it is ill-digested and has been put together in a popular way, without military understanding, and without any attempt to provide the essentials of military history. Occasionally Mr. Tyng seems to feel the weakness of his case, and, having stated what his French friends have suggested, gives a few pages later a better authenticated version. Thus, there is a mass of detail without a consistent guiding thread. Readers who know the campaign will laugh; those who do not, will wonder.

The book is provided with some roughly drawn diagrammatic sketch maps, quite inadequate for the understanding of the text. Though issued by the Oxford University Press, it is marked " printed in the United States of America."

The Royal Artillery Mess, Woolwich and Its Surroundings. By Lieut.-Colonel A. H. Burne, D.S.O., R.A. (W. H. Barrell, Ltd., Portsmouth). 2s. 6d.

This volume covers the history of the R.A. Mess from 1777 to 1933 and runs to about 250 pages.

It contains illustrations and plans of the buildings and includes a photo of the Abyssinian Cross, taken by " G " Battery, 14th Brigade, R.A., in 1868, at Magdala.

A Study of the Strategy and Tactics of the Russo-Japanese War, 1904. By Lieut.-Colonel A. Kearsey, D.S.O., O.B.E., *p.s.c.* (Gale & Polden, Ltd.). 5s.

This book has been specially written for the Military History set for the Promotion Examination, March, 1937. It is well supplied with maps and runs to about 150 pages. The operations are described so as to bring out the various points in F.S.R. Volume II and the result should prove good value to students.

Rifle Company and Platoon Tactics. By Major L. F. Hay, *p.s.c.*, The Black Watch. (Sifton Praed, Ltd.). 1s. 6d.

This volume covers the various operations of attack, defence, and security; it runs to about 50 pages. It brings in mortars, A.F.V.'s and gas, so it is up-to-date.

Wolfe and the Artists. By J. C. Webster. (The Ryerson Press, Toronto).

This book gives an analytical account of the chief works of art which have depicted the General and includes copies of about twenty-seven pictures.

Military and Imperial Organization. By Major L. C. Evans. (Hugh Rees, Ltd.). 1s. 6d.

This brochure consists of some thirty pages of notes for Certificate " B " and promotion. A great deal of information is presented in " tabloid " form and the book should prove useful to students.

REGIMENTAL HISTORIES

Essex Units in the War, 1914-1919. By J. W. Burrows, F.S.A. Vol. 6. (J. H. Burrows & Sons, Ltd.). 5s.

This volume contains the narratives of the 9th, 10th, 11th, 13th, and 15th Service Battalions of The Essex Regiment. The book is well printed, lavishly illustrated, has an adequate supply of maps and contains over 450 pages. It costs only five shillings. While all five battalions had a magnificent fighting reputation, the 13th Battalion secured the special distinction of a mention in despatches by the Commander-in-Chief.

The History of the Argyll and Sutherland Highlanders (Princess Louise's), 1794-1930. (M'Lagan & Cumming, Edinburgh).

This little brochure consists of about sixty pages. The histories of the 91st Regiment, the 93rd Highlanders, and later the combined story of the Argyll and Sutherland Highlanders (1st and 2nd Battalions) are given in précis form.

Historical Records of the Buffs (East Kent Regiment). 2 Vols. By Captain C. R. B. Knight. (Medici Society). 42s.

This history is published in two volumes—Vol. 1, 1704–1814 and Vol. 2, 1814–1914. It is well illustrated—a caricature by T. Rowlandson of the "Old Buffs" on the march, 1808, being particularly entertaining; and it is well provided with maps.

Vol 1 includes the services of the Regiment in Flanders, under the Duke of Marlborough; in Scotland, under the Duke of Cumberland; and, finally, in Portugal, Spain and France, under the Duke of Wellington. Vol. 2 is the story of the Regiment in India, before Sebastopol, in China, in the Zulu War, and in South Africa, 1899–1902. The services of this fine old regiment are so closely bound up with the history of our country that these well written volumes should have a wide appeal.

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